

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

1. 14
R31FSO

Reserved



United States
Department of
Agriculture

Soil
Conservation
Service

Portland,
Oregon



Water Supply Outlook for Oregon as of APRIL 1, 1983

MAY 12 1983
RECEIVED
CIVIL ENGINEERING
SECTION
U.S. DEPARTMENT OF AGRICULTURE



TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

**COVER PHOTO: FRESH POWDER SNOW ON ELEPHANT MOUNTAIN, NEAR THE
WEST FORK OF HYALITE CREEK, IN MONTANA.**

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4420 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.



★GPO 693-033

WATER SUPPLY OUTLOOK FOR OREGON

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued

April 1, 1983

Issued by

PETER C. MYERS
Chief
SOIL CONSERVATION SERVICE
WASHINGTON, D C

Released by

JACK P. KANALZ
STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
PORTLAND OREGON

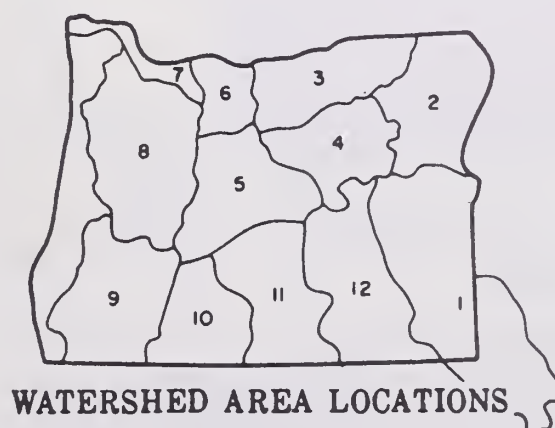
Report prepared by

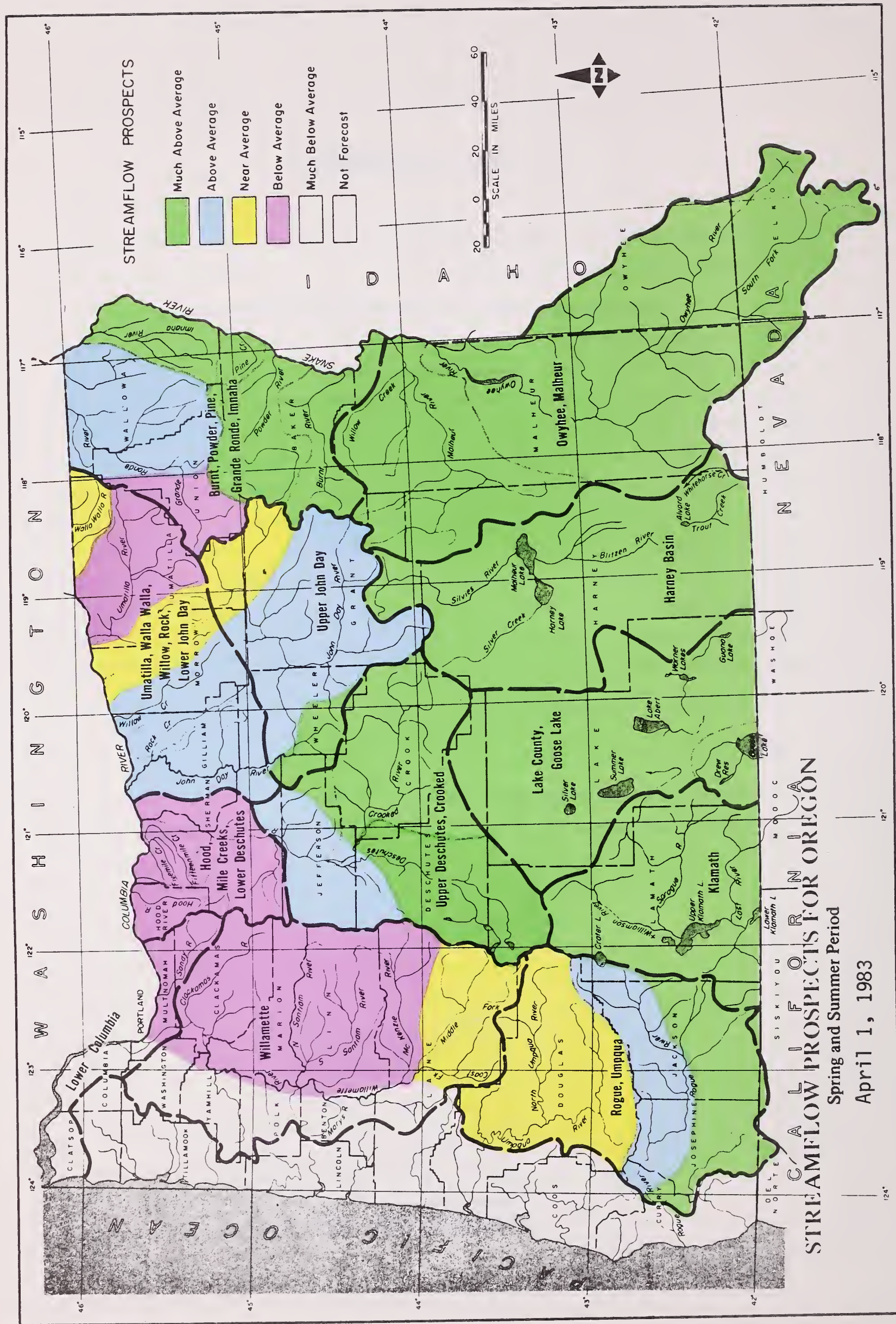
TOMMY A. GEORGE, Snow Survey Supervisor
STANLEY R. FOX, Asst. Snow Survey Supervisor
WILLIAM E. WOOLCOCK, Hydrologic Technician

SOIL CONSERVATION SERVICE
1220 S.W. THIRD AVENUE
PORTLAND, OREGON 97204

TABLE OF CONTENTS

	PAGE
STREAMFLOW PROSPECTS FOR OREGON.....(MAP).....	FACING PAGE 1
WATER SUPPLY OUTLOOK FOR OREGON.....	1
DETAILED WATER SUPPLY OUTLOOK BY MAJOR WATERSHED AREAS	
AREA 1 OWYHEE, MALHEUR.....	3
AREA 2 BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA.....	5
AREA 3 UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY.....	7
AREA 4 UPPER JOHN DAY.....	9
AREA 5 UPPER DESCHUTES, CROOKED.....	11
AREA 6 HOOD, MILE CREEKS, LOWER DESCHUTES.....	13
AREA 7 LOWER COLUMBIA.....	15
AREA 8 WILLAMETTE.....	17
AREA 9 ROGUE, UMPQUA.....	19
AREA 10 KLAMATH.....	21
AREA 11 LAKE COUNTY, GOOSE LAKE.....	23
AREA 12 HARNEY BASIN.....	25
BASIC DATA SUPPLEMENTS	<div style="display: flex; justify-content: space-between; padding: 0;"> <div style="text-align: center;">I II</div> <div style="text-align: center;">SNOW PRECIPITATION</div> </div>
MAP AND INDEX OF OREGON SNOW COURSES.....(MAP)	
LIST OF COOPERATORS.....INSIDE BACK COVER	





WATER SUPPLY OUTLOOK AND SUMMARY

FOR OREGON

APRIL 1, 1983

* Much above average water supplies are forecast for Oregon except in the *
* Willamette Valley and the northern tier of counties along the Columbia *
* where average supplies are expected. March precipitation was exception- *
* ally heavy leaving a much above normal snowpack in the mountains except *
* for the Northern Cascades which are below average. Reservoir storage is *
* excellent with many reservoirs full or nearly full as of April 1. *

SNOW COVER

Record to near record snowpack exists in the Siskiyou and in Klamath, Lake, Crook, Harney and Malheur counties. The areas of less than average snow cover are the northern Cascades and the Blue Mountains near Pendleton. The rest of the state is average to much above average.

PRECIPITATION

March was an extremely wet month. Two to three times normal precipitation fell over most of the state. Precipitation since November 1 has been above average with the highest amounts occurring in southern Oregon which shared in the major storms that brought so much rain to California. March temperatures were 4 to 6 degrees Fahrenheit above average causing rain to fall instead of snow at the low and median elevations of the Cascades. As a result the mountain soils are saturated.

RESERVOIR STORAGE

Streamflow was much above normal during March because of the warm temperatures and heavy precipitation. As a result many reservoirs are full or nearly full. Twenty-seven principal irrigation reservoirs contained 2,876,000 acre feet of water. This is 119% of the April 1 average and is 90% of total usable capacity.

STREAMFLOW

Streamflow is forecast to be much above average for most of Oregon. It is even expected to be near normal on most streams that have less than normal snow for this time of year. Volume forecast have been raised from last month's predictions because of the heavy March precipitation.

-continued on next page-

Forecasts of representative Oregon streamflow is as follows:

<u>STREAM</u>	<u>PERIOD</u>	<u>% OF AVERAGE</u>
Owyhee net Inflow	April - July	205
Grande Ronde @ LaGrande	April - July	79
Umatilla @ Pendleton	April - July	72
Deschutes @ Benham Falls	April - July	120
Willamette, Mid. Fork near Oakridge	April - July	110
Rogue @ Raygold	April - July	124
Upper Klamath Lake net Inflow	April - July	153
Silvies near Burns	April - July	176

Malheur Lake in Harney county is expected to reach the highest levels in recent history. This is causing problems for farmers and ranchers around the Lake with some farmsteads being abandoned.

These forecasts assume normal weather conditions will occur throughout the forecast period.

The forecasts in this bulletin are a result of a coordinated activity between the Soil Conservation Service and National Weather Service as an effort to provide the best possible service to the water user.

This report contains data furnished by the Oregon Department of Water Resources, U.S. Geological Survey, NOAA National Weather Service and other cooperators.

WATER SUPPLY OUTLOOK

OWYHEE, MALHEUR WATERSHEDS

OREGON

GENERAL OUTLOOK

Excellent water supplies are forecast for Malheur County. The mountain snowpack continues to be much above average. March was exceptionally wet with precipitation amounts three times normal being recorded. Reservoir storage is above normal for April 1. Beulah, Warm Springs and Owyhee reservoirs are all nearly full with the snow melt runoff yet to come. Streamflow volumes for April-July will be much above average and streams will recede 2 to 3 weeks later than usual.



STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average ^c
Bully Creek at Warm Springs	90	714	March-May		12.6 ^b
Malheur near Drewsey	130	183	April-July		71
	133	183	April-Sept.		73
Malheur, North Fork at Beulah	107	175	April-July		61
	113	169	April-Sept.		67
Owyhee Reservoir net Inflow	750	198	April-July		365
	775	198	April-Sept.		392
Owhee at Rome	740	205	April-July		361 ^b
Succor Creek near Jordan Valley	19.7	215	April-July		9.2 ^b

FORECAST DATE of LOW FLOW VALUES

FORECAST POINT	Low Flow Value Second/Ft.	Forecast Date Stream Will Recede to Low Flow Value	Average Date of Low Flow Value
Owyhee near Rome	2000	June 4	May 14
	1000	June 18	May 28
	500	July 4	June 11

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average ^c
Beulah Reservoir	60.0	56.9	57.9	43.9
Bully Creek	30.0	27.0	27.5	22.3
Owyhee	715.0	665.1	701.3	581.1
Warm Springs	191.0	173.9	168.1	126.1

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
Jordan Creek	3	115	163
Malheur River	5	95	147
Owyhee River	7	113	215
Bully Creek	2	2	3

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

WATER SUPPLY OUTLOOK

BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS

GENERAL OREGON LOOK

Excellent water supplies are forecast for Baker, Wallowa and Union Counties. The mountain snowpack is extremely good in all areas except the Upper Grande Ronde where it is below average. March was extremely wet bringing precipitation twice normal. Reservoir storage is above average for April 1 with reservoirs full or nearly full. Streamflow is expected to be above average except for the Grande Ronde at LaGrande which is forecast at 80% of average.



STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average ^c
Anthony Creek blw. North Fork nr. North Powder	90	144	April-July		15.5
Bear near Wallowa	74	113	April-Sept.		65
Big Creek blw. Burn Creek near Medical Spring	12.7	126	April-July		10.1
Burnt near Hereford	50	142	April-July		35
	52	142	April-Sept.		36
Catherine near Union	77	120	April-Sept.		64
Deer Creek above Phillips Res. near Sumpter	21	141	April-July		15.0 b
Eagle Creek above Skull Creek	236	140	April-July		169
	256	139	April-Sept.		184
Grande Ronde at La Grande	125	79	April-July		157
	129	80	April-Sept.		161
Hurricane near Joseph	51	110	April-Sept.		46
Imnaha at Imnaha	444	146	April-Sept.		305
Lostine near Lostine	135	110	April-Sept.		123
Pine Creek near Oxbow	267	138	April-July		194
Powder near Sumpter	85	149	April-July		57
	89	154	April-Sept.		58
Wallowa, East Fork near Joseph	10.6	115	April-July		9.1
	13.3	115	April-Sept.		11.4
Wallowa at Joseph	88	120	April-July		73
Wolf Creek Reservoir net Inflow	18.3	152	April-June		12.1

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average ^c
Phillips Lake	73.5	67.8	51.2	52.3
Thief Valley	17.4	18.1	17.7	17.4
Unity	25.2	21.1	18.7	19.6
Wallowa Lake	37.5	23.7	21.1	23.5
Wolf Creek	10.4	8.4	4.3	--

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
Burnt River	4	94	128
Grande Ronde River above La Grande	3	58	74
Powder River	5	108	138
Wallowa, Imnaha, Catherine Creek	6	88	118

FORECAST DATE of LOW FLOW VALUES

FORECAST POINT	Low Flow Value Second/Ft.	Forecast Date Stream Will Recede to Low Flow Value	Average Date of Low Flow Value
Eagle Cr.abv.Skull Cr.	225 160	Aug. 9 Aug. 20	July 25 Aug. 5
Catherine Creek near Union	100 50	Aug. 1 July 15 Aug. 2	Avg.value 49 July 9 July 28
Powder near Sumpter	100 20	July 3 July 26	June 25 July 22
Deer Cr. abv. Phillips Res. near Sumpter	40 10	June 22 July 13	June 17 July 6

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

WATER SUPPLY OUTLOOK

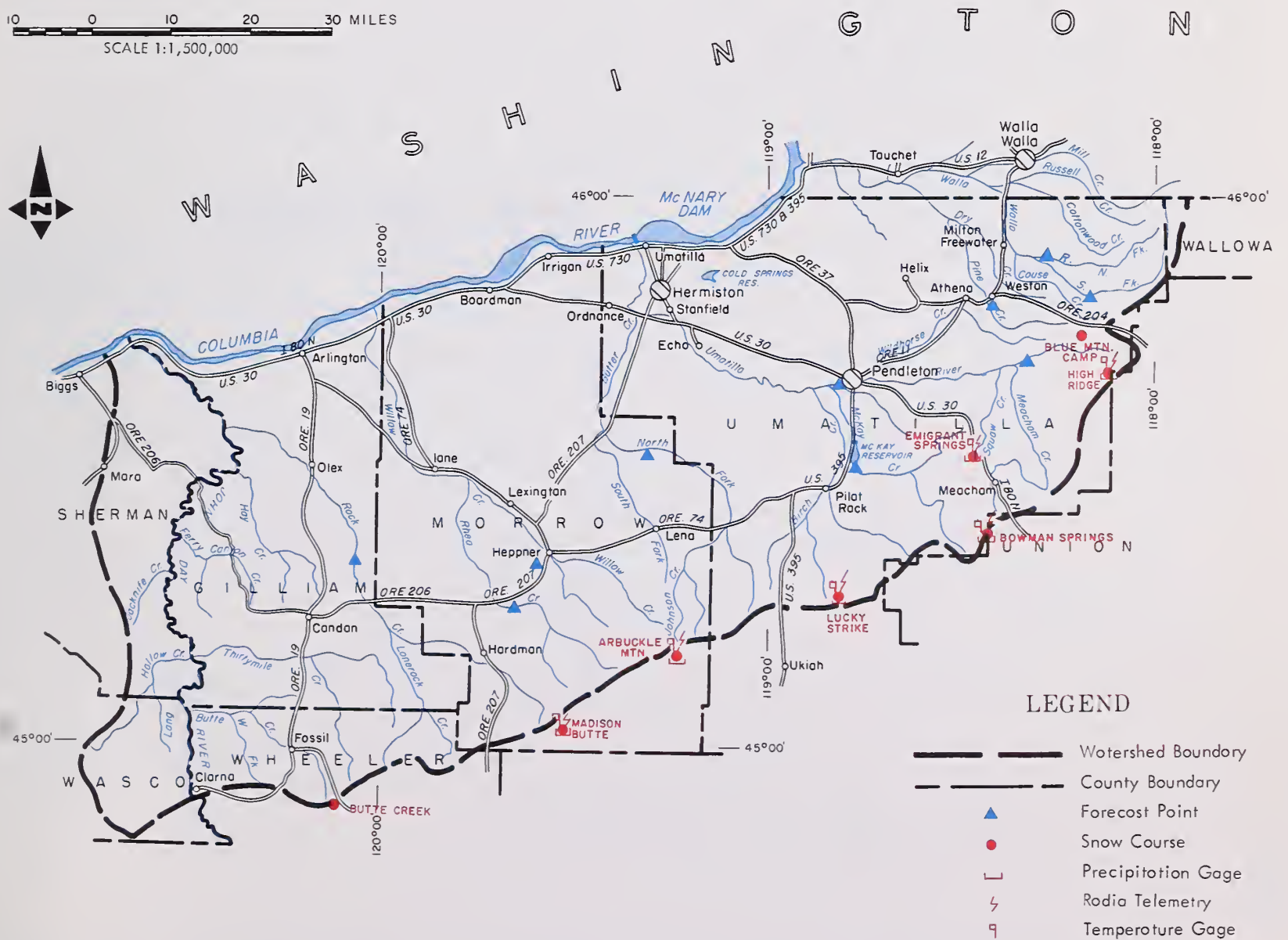
UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS

OREGON

GENERAL OUTLOOK

Average water supplies are forecast for the Umatilla basin. The mountain snowpack has melted early and is now below average. March was wet bringing precipitation amounts 170% of average. Reservoir storage is above normal for April 1.

10 0 10 20 30 MILES
SCALE 1:1,500,000



STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average ^c
Butter Creek near Pine City	8.0	107	April-July		7.5
Couse Creek near Milton Freewater	3.6	96	April-July		4.0 b
McKay near Pilot Rock	19.1	87	April-Sept.		22
Pine Creek near Weston	2.7	97	April-July		2.8 b
Rhea Creek near Heppner	3.7	88	April-July		4.2
Rock Creek above Cayuse Canyon near Condon	9.7	114	April-July		9.0 b
Umatilla near Gibbon	62	87	April-July		72
	68	87	April-Sept.		78
Umatilla at Pendleton	105	72	April-July		145
	110	73	April-Sept.		150
Walla Walla, South Fork near Milton	51	92	April-July		55
	64	93	April-Sept.		69
Willow Creek at Heppner	5.7	112	April-Sept.		5.1

FORECAST DATE of LOW FLOW VALUES

FORECAST POINT	Low Flow Value Second/Ft.	Forecast Date Stream Will Recede to Low Flow Value	Average Date of Low Flow Value
Umatilla at Pendleton	550	May 10	May 17
So. Fork Walla Walla	200	June 5	June 9
	106	Aug.-Sept. Min. flow	Avg. value 105

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average ^c
Cold Springs	50.0	47.8	48.0	47.3
McKay	73.8	67.4	64.7	47.5

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
McKay Creek	3	51	68
Umatilla River	3	60	81
Walla Walla River	2	64	85

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

WATER SUPPLY OUTLOOK

UPPER JOHN DAY WATERSHEDS

OREGON

GENERAL OUTLOOK

Water supplies in the John Day Basin are forecast to be above to much above average. The mountain snowpack is 115% of normal on the North Fork and 150% of average on the main stem. March was very wet with precipitation 195% of normal. The March flow at Service Creek was 335% of average. Mountain soils are wet and a positive factor for summer streamflow.



STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average ^c
Camas Creek near Ukiah	34	103	April-July		33
	35	103	April-Sept.		34
John Day, Middle Fork at Ritter	132	121	April-July		109
	136	120	April-Sept.		113
John Day, North Fork at Monument	625	119	April-July		526
	643	119	April-Sept.		541
Mountain Creek near Mitchell	5.3	151	April-July		3.1 ^b
Strawberry near Prairie City	8.3	115	April-July		7.1
	9.1	115	April-Sept.		7.7

FORECAST DATE of LOW FLOW VALUES

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

FORECAST POINT	Low Flow Value Second/Ft.	Forecast Date Stream Will Recede to Low Flow Value	Average Date of Low Flow Value	RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
						Last Year	Average ^c
John Day at Service	264	Aug. 1	Avg.value 212	John Day, North Fork	7	85	114
				John Day above Dayville	5	102	154

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

WATER SUPPLY OUTLOOK

UPPER DESCHUTES, CROOKED WATERSHEDS

OREGON

GENERAL OUTLOOK

Water supplies in the Deschutes and Crooked River basins are expected to be excellent. The snowpack is 125 to 145% of average on the Deschutes and nearly twice normal for the Crooked. The Derr snow course has reported a new maximum snowpack. March was extremely wet with precipitation at 177% of average. Reservoir storage is above average with most reservoirs full or nearly full and most of the snow melt runoff yet to come. Summer streamflow will be above to much above average.



STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average C
Beaver Creek near Paulina	38	236	April-July		16.0
	38	236	April-Sept.		16.1
Crane Prairie Reservoir total Inflow	122	159	April-July		77
	168	141	April-Sept.		120
Crescent at Crescent Lake	24	137	April-July		17.8
	31	139	April-Sept.		22.0
Crooked River near Prineville	216	243	April-July		89
	217	243	April-Sept.		90
Crooked R.,Nor. Fk. blw. Lookout Cr. nr Paulina	27	275	April-July		9.9b
Deschutes below Bend	191	--	Aug.-Sept.		--
Deschutes at Benham Falls	443	120	April-July		368
	650	116	April-Sept.		713
Deschutes below Snow Creek	94	150	April-Sept.		63
Deschutes, Little near La Pine	116	158	April-July		74
	130	155	April-Sept.		84
Ochoco Reservoir net Inflow	50	315	April-Sept.		16.6
Squaw near Sisters	58	120	April-Sept.		49
Tumalo near Bend	60	132	April-Sept.		45

FORECAST DATE of LOW FLOW VALUES

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

FORECAST POINT	Low Flow Value Second/Ft.	Forecast Date Stream Will Recede to Low Flow Value	Average Date of Low Flow Value	RESERVOIR	Usable Capacity	Usable Storage		
						This Year	Last Year	Average ^c
Crane Prairie net Inflow	491	Peak		Crane Prairie	55.3	53.2	39.3	47.2
	291	Oct. 31						
	Peak	May		Crescent Lake	86.9	72.4	35.5	65.1
Crooked R. near Post	100	June 19	June 1	Ochoco	47.5	45.3	34.1	33.8
Deschutes below Bend	1500	Oct. 1	July 19	Prineville	153.0	152.3	127.0	103.8
Little Deschutes near La Pine	400	June 19	June 7	Wickiup	200.0	199.0	185.4	190.4
	200	July 20	July 8					
Squaw Cr. nr. Sisters	100	Aug. 30	Aug. 16					
Tumalo Cr. near Bend	235	July 20	June 23					
	207	July 22	June 25					
	150	Aug. 2	July 5					
	71	Sept. 4	Aug. 7					

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
Crooked, Ochoco	4	123	192
Deschutes abv. Wickiup	3	101	120
Little Deshcutes	4	110	126
Tumalo & Squaw Crs.	3	112	142

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

WATER SUPPLY OUTLOOK

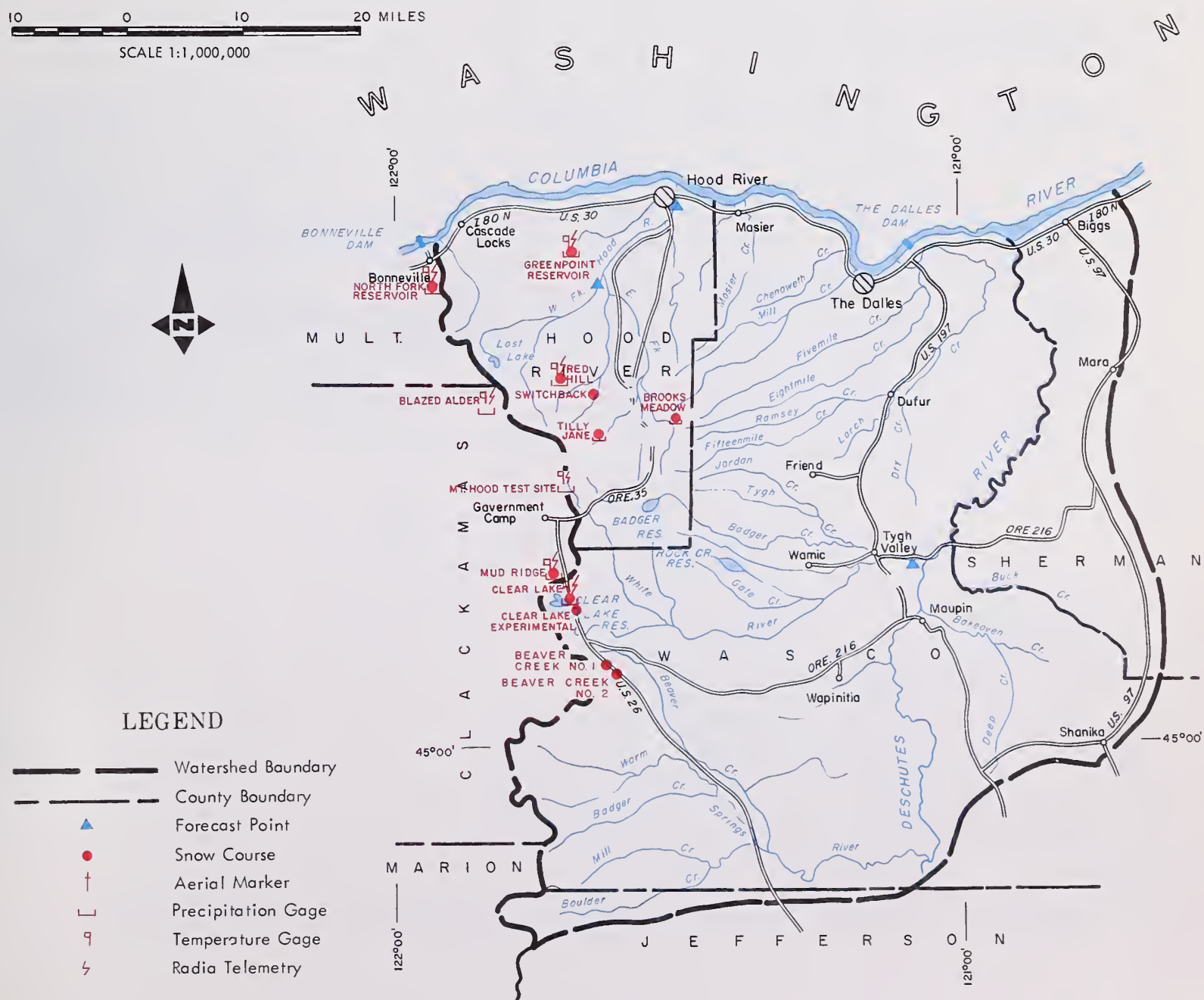
HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS

OREGON

GENERAL OUTLOOK

Water supplies in Hood River and Wasco Counties will be average to below average. The snowpack is below average because of the warm winter temperatures. March was wetter than usual with precipitation 140% of average. Summer streamflow should be 85 to 90% of average.

10 0 10 20 MILES
SCALE 1:1,000,000



STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average ^c
Hood River at Tucker Bridge near Hood River	229	95	April-July		242
	256	88	April-Sept.		289
Hood River, West Fork near Dee	118	93	April-July		127
	140	94	April-Sept.		149
White below Tygh Valley	100	88	April-July		114
	115	90	April-Sept.		129

FORECAST DATE of LOW FLOW VALUES

FORECAST POINT	Low Flow Value Second/Ft.	Forecast Date Stream Will Recede to Low Flow Value	Average Date of Low Flow Value
Clear Branch Inflow	*32	July 15-31	**39
*Average cfs forecast to flow for this two-week period.			
**Average cfs for period of record.			
White below Tygh Valley	200	July 3	July 3
	132	Aug. 1	Avg. value 145

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average ^c
Clear Lake (Wasco)	11.9	8.0	4.6	5.1

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
Hood River	5	69	70
Mile Creeks	1	134	77
White River	3	69	73

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

WATER SUPPLY OUTLOOK

LOWER COLUMBIA WATERSHEDS

OREGON

GENERAL OUTLOOK

Water supplies on the lower Columbia will be near average and on the Sandy they will be below average. Washington's water supplies will generally be near normal. The snowpack ranges from 73% on the Clearwater to 113% on the Snake and Salmon Rivers. The Sandy River has a 78% of average snowpack. March precipitation for the Columbia above The Dalles was 145% of normal and for the winter season it was near normal. Warm temperatures have prevailed throughout the Columbia basin with departures of 5° to 7° F above normal during March. This warm trend began in early January with temperatures generally 5-9 degrees above normal. During February the temperatures were even warmer with departures 7° to 11° F above normal. Because of these high temperatures much of the precipitation fell as rain and the low elevation snowpack has been melting.



SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average c
Sandy River	2	72	78

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average c
Columbia at The Dalles	90,600	102	April-July		88,520
	107,000	103	April-Sept.		103,500
Sandy River near Marmot	263	80	April-July		329
	308	80	April-Sept.		384

HISTORICAL DATA (Columbia River at The Dalles)

YEAR	STREAMFLOW ^a (1,000 A.F.)			REGULATED PEAK (1,000 c.f.s.)	DATE
	APR. — SEPT.	APR. — JUNE	MAY — JUNE		
1963	87,860	58,499	47,812	437	June 18
1964	110,422	73,512	63,670	662	June 18
1965	114,222	80,098	62,467	520	June 9
1966	87,386	58,250	45,962	396	June 12
1967	109,319	74,378	66,452	622	June 10
1968	89,102	55,593	47,994	404	June 13
1969	112,377	85,742	63,899	515	May 15
1970	88,243	62,993	55,227	425	May 28
1971	126,898	91,781	76,453	557	May 13
1972	135,500	97,041	81,451	619	June 20
1973	65,549	43,765	36,565	221	December 5
1974	139,501	99,035	78,946	588	June 20
1975	108,906	73,018	62,861	422	May 17
1976	122,771	79,084	62,554	418	May 14
1977	54,108	35,505	28,394	213	January 25
1963-77 Avg.	103,478	71,220	58,714	468	

LOWER COLUMBIA RIVER FLOOD STAGES (with 9.5' tide at Astoria)

VANCOUVER GAGE (Weather Bu.)	FLOW AT THE DALLES (1,000 c.f.s.)	DRAINAGE DISTRICT PUMPHOUSE						
		SANDY	SAUVIE ISL.	SCAPPOOSE	DEER ISL.	RAINIER	BEAVER	WOODSON
		RIVER MILES						
		118.9	96.0	91.0	77.0	62.0	52.0	47.0
35 (1894)	1210	41.2	34.2	33.3	28.5	21.9	17.5	15.5
34	1160	40.5	33.5	32.5	27.7	21.2	17.0	15.0
33	1100	39.6	32.4	31.4	26.7	20.2	16.1	14.3
32 (1972)	1050	38.9	31.5	30.5	25.7	19.5	15.4	13.7
31 (1948)	1000	38.0	30.7	29.5	25.1	18.8	14.7	13.0
30	943	36.6	29.5	28.5	24.3	18.1	14.0	12.4
29	897	35.5	28.5	27.7	23.7	17.5	13.4	11.8
28	853	34.3	27.5	26.7	22.8	17.0	13.0	11.4
27 (1956)	811	33.0	26.5	25.6	21.8	16.2	12.5	11.0
26 (1950)	771	32.1	25.5	24.6	20.9	15.5	12.2	10.7
25	733	30.7	24.2	23.2	19.7	14.6	11.7	10.3
24	697	29.7	23.0	22.2	19.0	14.1	11.4	10.2
23	662	29.0	22.3	21.4	18.4	13.6	11.2	10.0
22	628	28.1	21.4	20.3	17.2	13.0	10.9	9.7
21	595	27.2	20.7	19.5	16.4	12.6	10.6	9.6
20 (1954)	564	26.2	19.8	18.6	15.5	12.1	10.2	9.4
19	534	25.5	19.2	18.0	15.0	11.8	10.0	9.3
18	501	24.4	18.3	17.2	14.3	11.4	9.8	9.1
17	479	23.4	17.4	16.4	13.7	11.0	9.6	8.9
16	452	22.4	16.5	15.5	13.0	10.5	9.3	8.7

Water supplies in the Willamette Valley are expected to be near average to slightly below. The snowpack on the west side of the Cascades is below average. The major portion of this snow is along the Cascade crest. Winter precipitation has been 120% of normal, but warm temperatures have caused rain and early snow melt. March precipitation was 163% of normal. Reservoir storage is above average.



STREAMFLOW FORECASTS

STREAMFLOW FORECASTS	THIS YEAR			PAST RECORD	
BASIN, STREAM and/or FORECAST POINT	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average C
Clackamas at Estacada	557	83	April-July		674
	664	84	April-Sept.		788
Clackamas above Three Lynx	360	70	April-July		515
	444	73	April-Sept.		610
McKenzie at McKenzie Bridge	438	97	April-July		452
	583	97	April-Sept.		598
McKenzie near Vida	890	87	April-July		1,024
	1109	88	April-Sept.		1,259
McKenzie, South Fork near Rainbow	176	85	April-July		207
	206	88	April-Sept.		234
Mohawk River near Springfield	62	100	April-July		62
Oak Gorge Fork above Power Intake	107	78	April-July		137
	142	81	April-Sept.		175
Row near Dorena	84	86	April-July		98
	90	86	April-Sept.		104
Santiam, North at Mehama	647	86	April-July		752
	740	86	April-Sept.		860
Santiam, South at Waterloo	470	86	April-July		547
	507	86	April-Sept.		590
Scoggins Creek near Gaston	14.9	116	April-July		12.9
Thomas Creek near Scio	80	112	April-July		71
Willamette, Coast Fork near London	29	107	April-July		27
Willamette, Middle Fork below North Fork	746	110	April-July		678
near Oakridge	854	110	April-Sept.		776
Willamette, No. Fork of Mid Fork near Oakridge	203	108	April-July		188
	233	111	April-Sept.		209
Willamette at Salem	4045	96	April-July		4,213
	4597	98	April-Sept.		4,697

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average C
Clackamas River	2	37	35
McKenzie River	3	63	63
Santiam River	4	60	64
Row River	2	62	48
Willamette, Mid. Fork	4	94	99

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average C
Blue River	85.6*	58.7	58.1	50.0
Cottage Grove	30.0*	18.0	15.8	16.5
Cougar	155.2*	108.8	91.8	74.4
Detroit	299.9*	238.2	187.1	158.0
Dorena	70.5*	50.6	35.4	38.8
Fall Creek	115.0*	84.4	73.1	70.5
Fern Ridge	94.2*	85.8	77.8	72.4
Foster	30.0*	9.3	8.2	11.2
Green Peter	270.0*	209.0	133.8	161.3
Hills Creek	200.0*	157.0	133.8	111.8
Lookout Point	337.2*	242.4	196.9	157.9
Timothy Lake	61.7		56.5	53.5
Henry Hagg Lake	53	53.4	48.9	--
*Multiple purpose reservoir--space reserved primarily for flood runoff.				

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

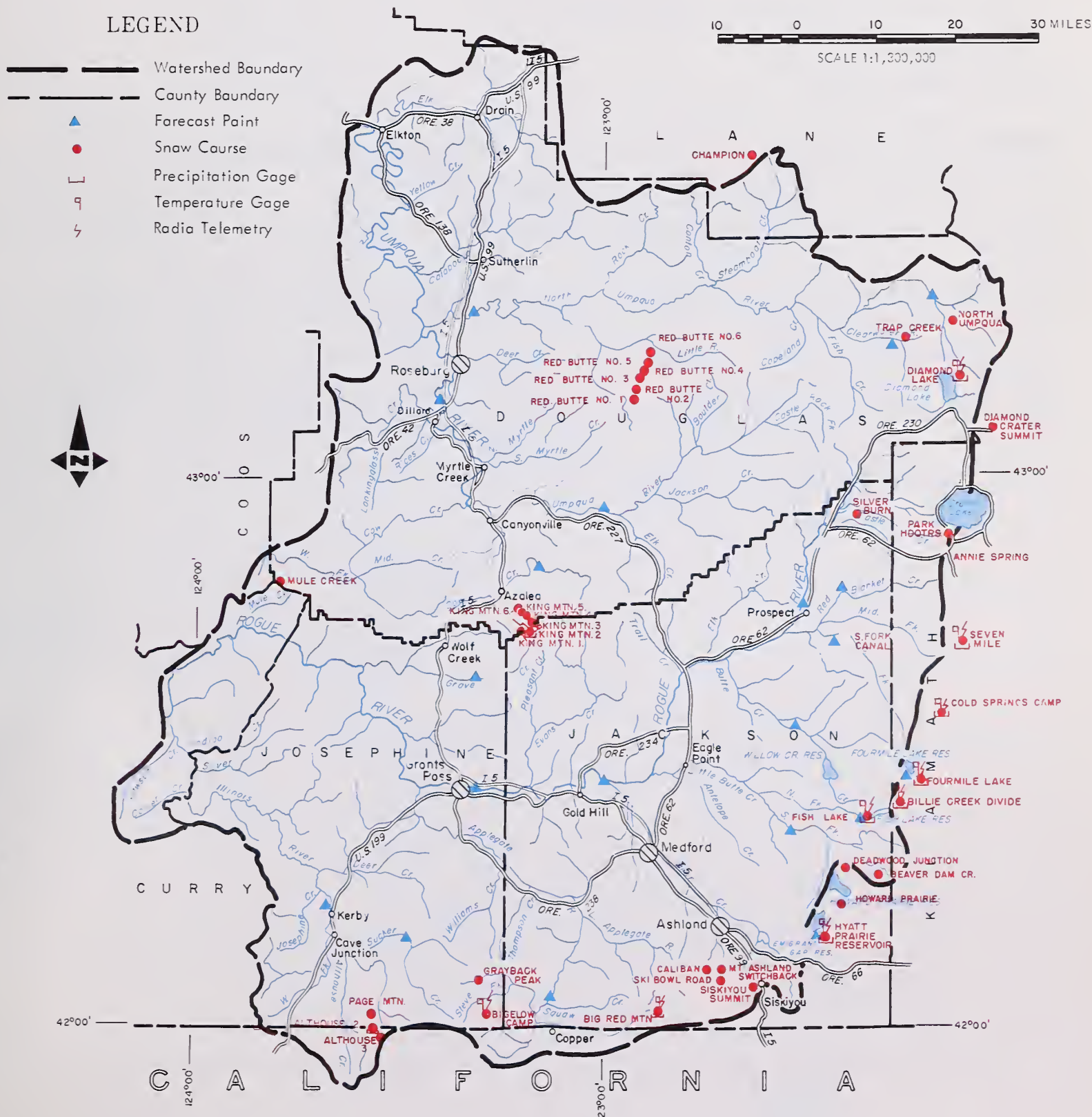
WATER SUPPLY OUTLOOK

ROGUE, UMPQUA, WATERSHEDS

OREGON

GENERAL OUTLOOK

Water supplies are forecast to be near average in the Umpqua basin and much above average in the Rogue basin. The snowpack is below average on the Umpqua and ranges from 130% to 200% of average on the Rogue. The snowpack in several areas is at record high levels. The Big Red Mountain, Cold Springs Camp, and Fourmile Lake snow courses have reported new maximum amounts of snow. Precipitation this past month was 172% of normal and has been 122% of average since November 1. Reservoirs are full or nearly full except for Lost Creek and Applegate which will be used to control the snow melt runoff which is yet to come.



STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR		PAST RECORD	
	FORECAST		THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average	PERIOD	Last Year Average ^c
Applegate near Copper	249	193	April-Sept.	129
Big Butte Creek, So. Fork near Butte Falls	48	131	April-July	37
Clearwater above Trap Creek	76	106	April-Sept.	71
Cow Creek near Azalea	24	136	April-July	17.6
Fourmile Lake net Inflow	8.0	205	April-Sept.	3.9
Grave Creek at Pease Bridge near Placer	9.7	126	April-July	7.7
Hyatt Reservoir net Inflow	6.6	135	April-July	4.9
Illinois River near Kerby	269	153	April-July	176
	273	150	April-Sept.	183
Little Butte, N.Fk. at Fish Lake near Lake Cr.	19.2	137	April-Sept.	14.0
Little Butte, S. Fk. near Lake Creek	47	151	April-July	31
Red Blanket Creek near Prospect	47	132	April-July	35
Rogue above Prospect	308	120	April-July	257
	377	120	April-Sept.	314
Rogue, South Fork near Prospect	74	120	April-July	62
	89	120	April-Sept.	74
Rogue at Raygold near Central Point	935	124	April-July	756
	1121	122	April-Sept.	919
Rogue at Grants Pass	1178	129	April-Sept.	913
Sucker Cr. Blw. Little Grayback near Holland	98	168	April-July	58
Umpqua, No.blw. Lemolo Lake nr. Toketee Falls	160	94	April-Sept.	170
Umpqua, No. at Winchester	711	93	April-July	768
Umpqua, South near Brockway	373	98	April-July	380
Umpqua, South at Tiller	186	101	April-July	183

FORECAST DATE of LOW FLOW VALUES

FORECAST POINT	Low Flow Value Second/Ft.	Forecast Date Stream Will Recede to Low Flow Value	Average Date of Low Flow Value
Cow Creek near Azalea	20	July 17	July 4
	10	Sept. 1	Aug. 15
Little Butte Creek, South Fork	100	June 5	May 15
South Umpqua near Brockway	90	Aug. 19	July 30
South Umpqua at Tiller	140	July 12	July 10
	90	Aug. 30	July 30

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average ^c
Applegate	75.2	50.9	--	--
Emigrant Lake	39.0	39.0	38.8	36.1
Fish Lake	8.0	6.9	4.8	6.1
Fourmile Lake	16.1	10.9	7.8	10.6
Howard Prairie	60.0	60.6	61.7	47.9
Hyatt Prairie	16.1	16.2	16.2	13.3
Lost Creek	315.0	160.3	278.0	--

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

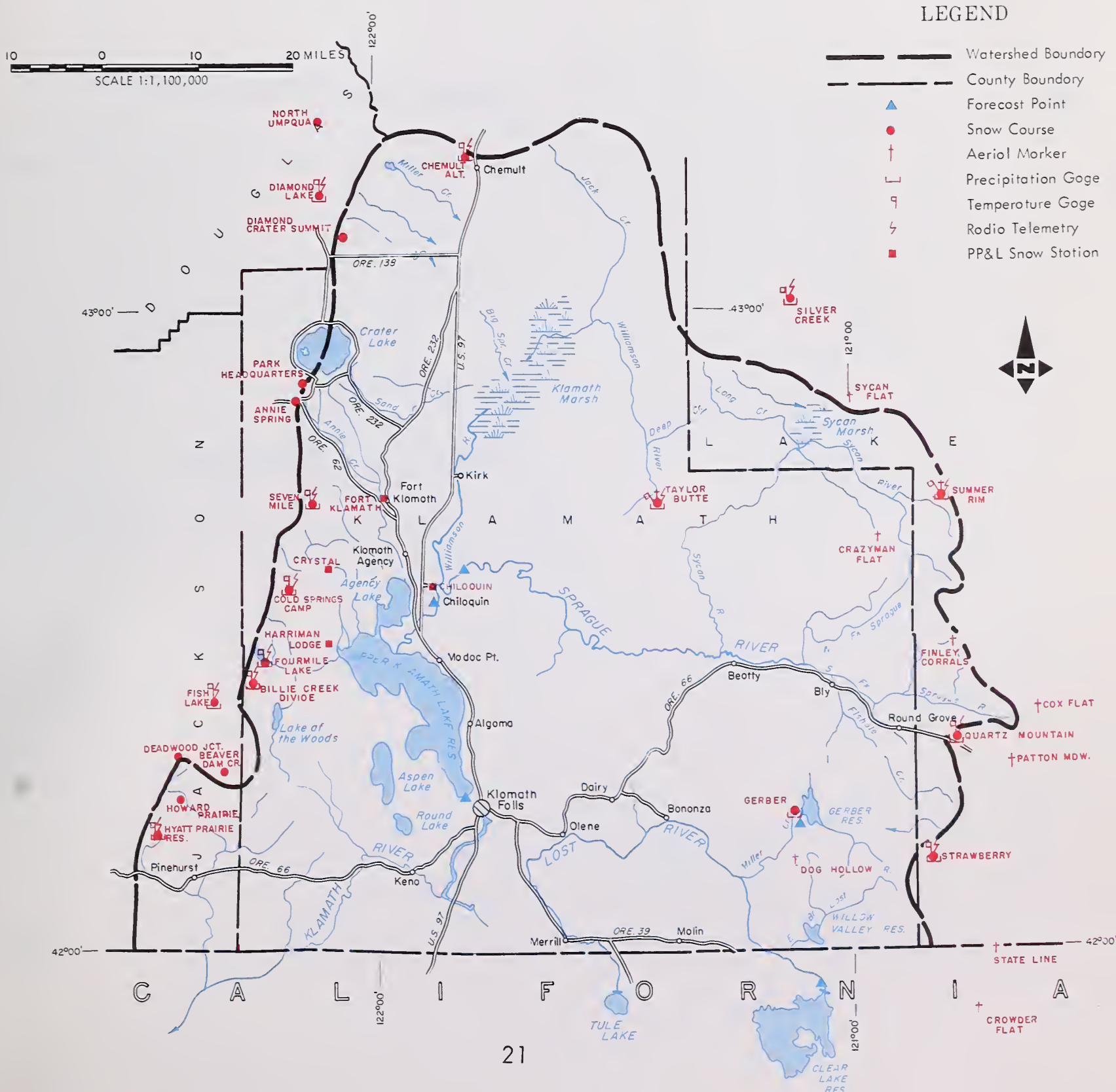
RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
Applegate	2	238	204
Bear Creek	2	184	158
Butte Creek	4	158	150
Illinois River	3	334	169
North Umpqua	3	76	75
Rogue River	4	123	132
Mt. Ashland	4	188	171

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

WATER SUPPLY OUTLOOK KLAMATH WATERSHEDS OREGON

GENERAL OUTLOOK

Klamath County water supplies are expected to be much above average. The snowpack is 145 to 185% of average. A record high snowpack was recorded at Crazyman Flat aerial marker. Precipitation was about $2\frac{1}{2}$ times normal during March. Reservoir storage is excellent in Gerber and Clear Lake with both expected to be full from the snow melt runoff. Upper Klamath Lake is below average but inflow to the Lake for the April-July period is forecast to be $1\frac{1}{2}$ times normal.



STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average ^c
Clear Lake Reservoir Inflow	75	180	April-July		42
	76	174	April-Sept.		44
Gerber Reservoir Inflow	37	191	April-July		19.5
	38	190	April-Sept.		20.0
Sprague near Chiloquin	355	167	April-July		212
	388	160	April-Sept.		242
Upper Klamath Lake net Inflow	682	153	April-July		438
	824	154	April-Sept.		526
Williamson below Sprague River	537	131	April-Sept.		409

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average ^c
Clear Lake	440.2	419.2	287.7	277.7
Gerber	94.0	90.5	96.0	66.4
Upper Klamath Lake	584.0	443.4	451.0	467.7

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
Lost River	4	159	146
Sprague River	3	142	182
Upper Klamath	6	135	152
Williamson River	3	125	145

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

WATER SUPPLY OUTLOOK

LAKE COUNTY, GOOSE LAKE WATERSHEDS

OREGON

GENERAL OUTLOOK

Lake County is expected to have much above average water supplies this spring and summer. The snow melt at the lower elevations which normally occurs in March did not happen, and the mountain snowpack is at record high levels at many locations. Finley Corrals, Patton Meadows, Roger Meadows, and Sherman Valley have reported new maximum snowpacks. Precipitation during March was 270% of normal. Drews, Cottonwood and Thompson Valley reservoirs are all full and spilling with the major portion of the runoff yet to come.



STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average ^c
Bridge Creek near Spahr Ranch near Silver Lake	6.6	195	April-July		3.4
Chewaucan near Paisley	127	166	April-July		77
	132	164	April-Sept.		81
Cottonwood Creek near Lakeview	16.2	171	April-July		9.5
Deep above Adel	111	165	April-July		67
	113	163	April-Sept.		69
Drews Reservoir net Inflow	53	194	April-July		27
Honey Creek near Plush	33	188	April-July		17.7
	34	188	April-Sept.		17.9
Silver Creek near Silver Lake	26	182	April-July		14.1
Twentymile near Adel	44	244	April-July		18.1
	45	242	April-Sept.		18.6

FORECAST DATE of LOW FLOW VALUES

FORECAST POINT	Low Flow Value Second/Ft.	Forecast Date Stream Will Recede to Low Flow Value	Average Date of Low Flow Value
Deep Cr. above Adel	100	July 10	June 21
Honey Cr. near Plush	100	June 15	May 15
	50	June 30	May 30
Twentymile near Adel	50	July 1	June 2
	10	Aug. 1	July 3

RESERVOIR STORAGE (Thousand Ac. Ft.)

RESERVOIR	Usable Capacity	END OF MONTH		
		Usable Storage		
		This Year	Last Year	Average ^c
Cottonwood	8.7	8.7	8.7	4.8
Drews	63.0	62.5	63.5	50.8
Thompson Valley	19.5	19.5	19.5	15.4

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

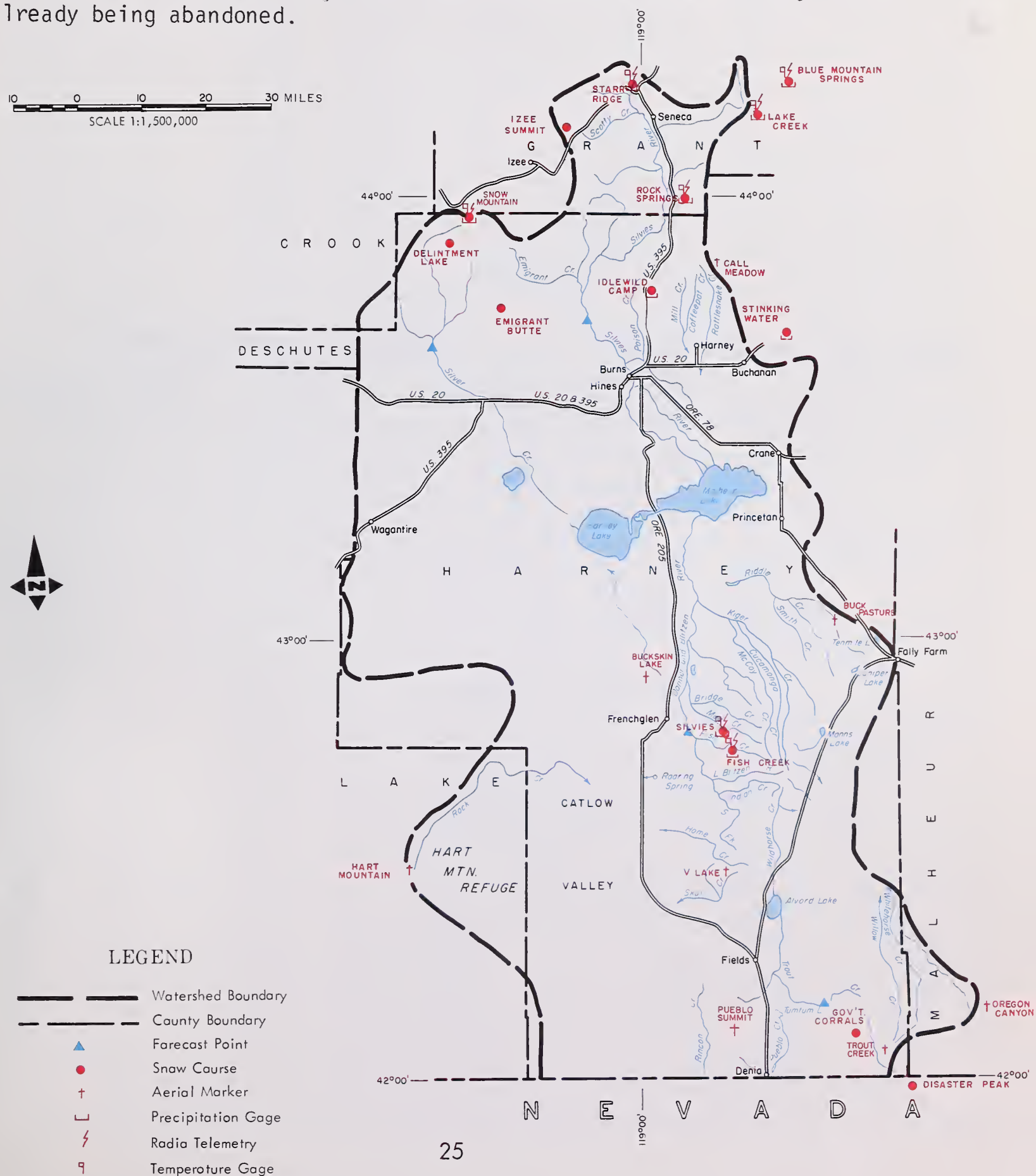
RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
Chewaucan River	3	143	183
Deep Creek	4	192	170
Drew Creek	3	333	191
Honey Creek	3	200	205
Silver Creek	3	132	168
Twentymile Creek	3	380	272

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

WATER SUPPLY OUTLOOK HARNEY BASIN WATERSHEDS OREGON

GENERAL OUTLOOK

Water supplies in Harney County are expected to be much above average. The snowpack is 160% in the north part of the county, 173% in the Steens and 310% of average on Trout Creek. An all time record amount of snow was measured at the Silvies and Snow Mountain snow courses and at the Trout Creek aerial marker. Precipitation during March was 319% of average. Malheur Lake will be at its highest levels in recent history with some farmsteads in the vicinity of the Lake already being abandoned.



STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average ^c
Donner und Blitzen near Frenchglen	103 110	198 195	April-July April-Sept.		52 57
Silver near Riley	38	240	April-July		15.8
Silvies River near Burns	133 136	176 175	April-July April-Sept.		75 77
Trout Creek near Denio	18.3	208	April-Sept.		8.8

FORECAST DATE of LOW FLOW VALUES

FORECAST POINT	Low Flow Value Second/Ft.	Forecast Date Stream Will Recede to Low Flow Value	Average Date of Low Flow Value
Silvies near Burns	400	May 19	May 5
	200	June 18	May 21
	100	July 2	June 9
	50	July 7	June 23
Donner und Blitzen	200	July 12	June 15
	100	Aug. 4	July 5
<hr/>			
Malheur Lake at Break in Cole Island Dike near Voltage	GAGE HEIGHT	SURFACE ACRES	AVG. SURFACE ACRES
	July 1	97.16	120,000
	August 1	96.69	115,000

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
Donner und Blitzen	3	150	173
Silver Creek	3	114	160
Silvies River	4	94	161
Trout Creek	2	213	310

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

BASIC DATA SUPPLEMENT 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE	THIS YEAR			PAST RECORD	
	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)	
				Last Yr.	Ave. ^c
OWYHEE MALHEUR WATERSHEDS AREA 1					
Antelope Ridge (Ida.)	3/26	22	7.5	10.4	6.2
Battle Creek (Ida.) *	4/5	6	1.2	0.0	1.7
Bear Creek (Nev.)	4/1	83	27.8	31.5	21.4
Bend (Nev.)	3/29	38	13.7	14.2	8.2
Blue Mountain Springs	3/28	66	22.8	23.2	16.0
Blue Mtn. Spgs. Plw. (T)	3/28	--	24.0	--	--
Blue Mtn. Spgs. Plw. (S)	3/28	66	22.3	26.0	13.8b
Blue Mtn. Spgs. Plw. (M)	3/28	--	25.6	28.4	12.2b
Boulder Creek *	4/5	6	1.2	3.8	--
Buck Pature *	4/5	0	0.0	0.1	1.8
Buckskin, Lower (Nev.)	3/28	64	20.4	--	7.0
Buckskin, Upper (Nev.)	3/28	55	19.2	--	9.3
Bull Basin (Ida.) *	4/5	TR	0.1	0.0	0.4
Bully Creek *	4/5	TR	0.1	2.7	0.8
Call Meadows *	4/5	15	5.4	5.7	2.7
Columbia Basin (Nev.)	4/1	32	11.2	--	6.8b
Disaster Peak (Nev.)	3/28	63	23.6	--	10.9
Eldorado Pass	3/31	0	0.0	0.1	1.4
Fawn Creek (Nev.)	3/29	71	26.1	14.7	5.2b
Fish Creek (Rev.)	3/29	116	38.2	33.0a	26.1
Fish Creek Pillow (T)	3/29	--	47.7	--	--
Fish Creek Pillow (S)	3/29	125	46.0	34.0	--
Fish Creek Pillow (M)	3/29	--	46.4	36.8	29.8b
Flag Prairie *	4/5	0	0.0	2.3	2.6
Fox Creek (Nev.)	4/1	41	13.1	14.7	9.5b
Fry Canyon (Nev.)	3/29	35	13.4	13.1	6.1
Gold Creek (Nev.)	3/29	21	7.7	8.8	4.9
Government Corrals	3/31	68	23.0	--	--
Granite Peak (Nev.)	3/28	138	58.0	--	15.4b
Hyde Pasture (Ida.) *	4/5	21	8.0	8.6	3.2
Jack Creek, Lower (Nev.)	3/29	21	7.0	2.1	2.3
Jack Creek, Upper (Nev.)	3/29	44	15.4	14.1	9.4
Jack Peak (Nev.)	3/29	106	36.4	37.0	26.0
Johnston Pond (Ida.) *	N/R			--	--
Lake Creek R.S.	3/28	41	14.5	14.0	9.2
Lake Creek R.S. Plw. (T)	3/28	--	21.8	18.9	--
Lake Creek R.S. Plw. (S)	3/28	44	16.3	15.0	--
Lake Creek R.S. Plw. (M)	3/28	--	19.2	17.1	--
Laurel Draw (Nev.)	3/29	38	13.7	11.7	7.1b
Lookout Butte *	4/5	0	0.0	0.0	--
Louse Canyon *	4/5	29	11.0	5.4	3.4
Martin Creek (Nev.)	3/28	60	23.2	--	8.5
Merritt Mountain (Nev.) *	4/1	16	5.8	--	5.8b
Midas (Nev.) *	4/1	30	11.4	--	2.4b
Mud Flat (Ida.)	3/26	18	6.4	8.4	4.9
Oregon Canyon *	4/5	30	11.4	2.2	3.8
Quinn Ridge (Nev.) *	4/5	TR	0.1	0.0	0.9
Red Canyon (Ida.) *	4/5	27	10.3	9.7	5.0
Rock Springs	3/31	26	9.3	9.0	4.3
Rock Spgs. Plw. (T)	3/31	--	10.1	5.2	--
Rock Spgs. Plw. (S)	3/31	23	8.5	5.0	--
Rock Spgs. Plw. (M)	3/31	--	9.9	5.5	--
Rodeo Flat (Nev.)	3/29	37	14.3	10.7	4.9
76 Creek (Nev.) *	4/1	52	17.4	--	11.5b
Silver City (Ida.) *	4/5	52	20.0	19.8	15.5
Silver City (Ida.)	3/26	56	21.5	19.1	13.5b
Silvies	4/1	74	31.0	14.0	12.9
Silvies Pillow (T)	N/R			--	--
Silvies Pillow (S)	4/1	94	40.0	19.0	--
Silvies Pillow (M)	N/R		13.3	--	21.9b
South Mountain #2 (Ida.)	4/2	70	26.5	19.0	13.0
South Mtn. #2 Plw. (T)	4/2	--	35.1	--	--
Stag Mountain (Nev.) *	4/1	35	12.6	--	4.8b
Stinking Water	4/1	0	0.0	0.0	0.8b
Succor Creek (Ida.) *	4/5	41	15.6	10.5	5.0
Taylor Canyon (Nev.)	3/29	27	10.4	10.0	2.7
Toe Jam (Nev.) *	4/1	48	15.8	--	8.3b
Tremewan Ranch (Nev.) *	3/29	0	0.0	0.0	0.3
Trout Creek *	4/5	63	23.9	14.4	7.6
"V" Lake *	N/R			13.3	6.5
Vaught Ranch (Ida.) *	4/5	0	0.0	0.0	1.7b
War Eagle (Ida.) *	4/5	102	40.8	28.6	25.1b

SNOW

DRAINAGE BASIN and/or SNOW COURSE	THIS YEAR			PAST RECORD	
	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)	
				Last Yr.	Ave. ^c
BURNT, POWDER, PINE, IMNAHA GRANDE RONDE WATERSHEDS AREA 2					
Aneroid Lake #2	3/27	114	39.4	38.8	34.0
Aneroid Lake #2 Plw. (T)	3/27	--	34.4	--	--
Aneroid Lake #2 Plw. (S)	3/27	113	39.8	36.2	--
Aneroid Lake #2 Plw. (M)	N/R			--	--
Anthony Lake	3/31	101	33.8	33.8	27.4
Bald Mountain (OR) *	3/28	75	25.5	37.4	24.0
Beaver Reservoir (Rev.)	3/30	39	10.2	13.0	12.7
Beaver Res. Pillow (T)	3/30	--	8.5	13.8	--
Beaver Res. Pillow (S)	3/30	27	8.0	11.5	--
Beaver Res. Pillow (M)	3/30	--	8.9	--	--
Big Sheep *	3/28	93	35.3	43.7	25.2
Blue Mtn.Summit (DISC.82)			10.4a	13.8	8.0
Bourne	3/28	53	19.4	17.6	14.5
Bourne Pillow (T)	3/28	--	29.0	--	--
Bourne Pillow (S)	3/28	67	23.1	20.8	--
Bourne Pillow (M)	3/28	--	27.8	19.2	--
County Line (Rev.)	3/28	9	1.7	6.8	3.4
County Line Pillow (T)	3/28	--	1.9	--	--
County Line Pillow (S)	3/28	9	1.6	4.4	--
County Line Pillow (M)	3/28	--	0.0	--	--
Dooley Mountain (DISC.82)			10.8a	12.2	7.9
Eilertson Meadows	3/28	41	15.3	14.9	11.6
Eilertson Meadows Plw. (T)	3/28	--	17.6	17.8	--
Eilertson Meadows Plw. (S)	3/28	41	14.8	12.2	--
Eilertson Meadows Plw. (M)	3/28	--	16.1	17.0	--
Eldorado Pass	3/31	0	0.0	0.1	1.4
Gold Center	3/28	38	13.8	14.2	12.6
Gold Center Pillow (T)	3/28	--	12.9	13.7	--
Gold Center Pillow (S)	3/28	31	10.4	11.4	--
Gold Center Pillow (M)	3/28	--	11.8	12.6	--
Goodrich Lake (DISC.82)			47.8a	29.3	36.8
Little Alps	3/31	66	17.2	17.2	14.8
Little Antone (Alt.)	3/31	27	9.2	10.1	--
Lucky Strike	3/28	31	9.7	15.9	12.7
Lucky Strike Pillow (T)	3/28	--	13.6	--	--
Lucky Strike Pillow (S)	3/28	27	8.3	13.9	--
Lucky Strike Pillow (M)	3/28	--	14.2	--	--
Mirror Lake *	3/28	170	64.6	88.9	74.6
Moss Spring	3/28	69	22.8	33.2	24.8
Moss Spring Pillow (T)	3/28	--	26.9	35.0	--
Moss Spring Pillow (S)	3/28	71	23.8	30.5	--
Moss Spring Pillow (M)	3/28	--	26.1	34.9	--
Mt. Howard Pillow (T)	N/R				
Mt. Howard Pillow (S)	3/28	69	23.5	25.0	--
Mt. Howard Pillow (M)	N/R				
Schneider Meadow	3/28	106	45.2	40.4	30.4
Schneider Meadow Plw. (T)	N/R				
Schneider Meadow Plw. (S)	3/28	105	44.8	40.0	--
Schneider Meadow Plw. (M)	N/R				
Standley *	3/38	113	38.4	41.0	33.5
Taylor Green	3/28	64	24.4	22.8	16.8
Taylor Green Pillow (T)	3/28	--	31.0	33.2	--
Taylor Green Pillow (S)	3/28	74	29.5	26.2	--
Taylor Green Pillow (M)	3/28	--	27.9	31.3	--
Tipton	3/28	32	12.6	11.9	9.9
Tipton Pillow (T)	3/28	--	20.1	24.8	--
Tipton Pillow (S)	3/28	47	15.4	18.8	14.3b
Tipton Pillow (M)	3/28	--	20.4	23.0	--
TV Ridge *	3/28	76	25.8	31.2	23.3b
West Eagle Meadows *	3/28	94	35.7	34.8	--
Wolf Creek Pillow (T)	3/28	--	20.3	26.1	--
Wolf Creek Pillow (S)	3/28	65	21.9	22.1	--
Wolf Creek Pillow (M)	3/28	--	24.1	25.6	--

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

BASIC DATA SUPPLEMENT 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE	THIS YEAR			PAST RECORD	
	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)	
				Last Yr.	Ave. ^c
UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS AREA 3					
Arbuckle Mountain	3/28	34	10.8	12.8	10.3
Arbuckle Mountain Plw. (T)	3/28	--	38.5	--	--
Arbuckle Mountain Plw. (S)	3/28	81	25.5	28.4	--
Arbuckle Mountain Plw. (M)	3/28	--	38.0	--	24.2b
Blue Mountain Camp(DISC.82)			11.6a	20.2	15.2
Bowman Springs Plw. (T)	3/28	--	9.6	--	--
Bowman Springs Plw. (S)	3/28	25	7.3	13.0	9.8
Bowman Springs Plw. (M)	3/28	--	9.1	--	--
Butte Creek Summit	N/R				
Emigrant Springs	3/28	3	0.9	6.1	3.9
Emigrant Springs Plw. (T)	3/28	--	0.3	--	--
Emigrant Springs Plw. (S)	3/28	2	0.3	8.1	--
Emigrant Springs Plw. (M)	3/28	--	0.0	--	--
High Ridge Pillow (T)	3/30	--	35.0	45.3	--
High Ridge Pillow (S)	3/20	76	28.9	42.9	--
High Ridge Pillow (M)	3/30	--	35.1	43.2	32.3
Lucky Strike	3/28	31	9.7	15.9	--
Lucky Strike Pillow (T)	3/28	--	13.6	--	12.7
Lucky Strike Pillow (S)	3/28	27	8.3	13.9	--
Lucky Strike Pillow (M)	3/28	--	14.2	--	--
Madison Butte Pillow (T)	3/28	--	1.6	--	--
Madison Butte Pillow (S)	3/28	13	3.8	4.8	--
Madison Butte Pillow (M)	3/28	--	1.6	--	--
UPPER JOHN DAY WATERSHEDS AREA 4					
Anthony Lake	3/31	101	33.8	33.8	27.9
Arbuckle Mountain	3/28	34	10.8	12.8	10.3
Arbuckle Mountain Plw. (T)	3/28	--	38.5	--	--
Arbuckle Mountain Plw. (S)	3/28	81	25.5	28.4	--
Arbuckle Mountain Plw. (M)	3/28	--	38.0	--	24.2b
Blue Mountain Springs	3/28	66	22.8	23.2	16.0
Blue Mtn. Spgs. Plw. (T)	3/28	--	24.0	--	--
Blue Mtn. Spgs. Plw. (S)	3/28	66	22.3	26.0	13.8b
Blue Mtn. Spgs. Plw. (M)	3/28	--	25.6	28.4	12.2b
Blue Mountain Sum.(DISC.82)			10.4a	13.8	8.0
Butte Creek Summit	N/R			--	--
Derr	4/1	49	22.3	12.8	8.9
Derr Pillow (T)	4/1	--	30.6	24.1	--
Derr Pillow (S)	4/1	70	28.0	20.5	--
Derr Pillow (M)	4/1	--	29.5	23.7	--
Gold Center	3/28	38	13.8	14.2	12.6
Gold Center Plw. (T)	3/28	--	12.9	13.7	--
Gold Center Plw. (S)	3/28	31	10.4	11.4	--
Gold Center Plw. (M)	3/28	--	11.8	12.6	--
Izee Summit (DISC. 82)			10.5a	12.4	6.6
Lucky Strike	3/28	31	9.7	15.9	12.7
Lucky Strike Pillow (T)	3/28	--	13.6	--	--
Lucky Strike Pillow (S)	3/28	27	8.3	13.9	--
Lucky Strike Pillow (M)	3/28	--	14.2	--	--
Marks Creek	3/28	TR	0.1	2.3	1.8
Ochoco Meadows	3/30	37	15.0	14.3	8.2
Ochoco Meadows Plw. (T)	3/30	--	17.5	--	--
Ochoco Meadows Plw. (S)	3/30	50	20.0	17.0	--
Ochoco Meadows Plw. (M)	3/30	--	17.2	--	--
Snow Mountain (DISC. 82)			22.0a	18.7	12.1
Snow Mountain Plw. (T)	3/28	--	22.7	--	--
Snow Mountain Plw. (S)	3/28	60	20.0	16.0	11.0b
Snow Mountain Plw. (M)	N/R			17.2	--
Starr Ridge	3/30	24	8.1	9.2	4.6
Starr Ridge Plw. (T)	3/30	--	10.2	8.6	--
Starr Ridge Plw. (S)	3/30	25	8.4	6.8	--
Starr Ridge Plw. (M)	3/30	--	10.7	9.1	--
Tipton	3/28	32	12.6	11.9	9.9
Tipton Pillow (T)	3/28	--	20.1	24.8	--
Tipton Pillow (S)	3/28	47	15.4	18.8	14.3b
Tipton Pillow (M)	3/28	--	20.4	23.0	--

SNOW

DRAINAGE BASIN and/or SNOW COURSE	THIS YEAR			PAST RECORD	
	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)	
				Last Yr.	Ave. ^c
UPPER DESCHUTES, CROOKED WATERSHEDS AREA 5					
Bald Peter	3/25	111	43.0	45.4	30.1b
Beaver Creek #1	3/31	37	13.0	10.4	--
Beaver Creek #2	3/31	19	6.6	--	--
Caldwell Ranch (DISC. 82)			11.5a	11.2	8.5b
Cascade Summit	3/29	83	31.7	36.2	30.1
Cascade Summit Plw. (T)	3/29	--	34.9	43.2	--
Cascade Summit Plw. (S)	3/29	93	34.5	41.5	--
Cascade Summit Plw. (M)	3/29	--	33.9	41.5	--
Chemult Alternate	4/1	47	17.6	11.9	9.0
Chemult Alt. Plw. (T)	4/1	--	13.9	8.9	--
Chemult Alt. Plw. (S)	4/1	43	16.5	9.0	--
Chemult Alt. Plw. (M)	4/1	--	13.2	8.1	--
Derr	4/1	49	22.3	12.8	8.9
Derr Pillow (T)	4/1	--	30.6	24.1	--
Derr Pillow (S)	4/1	70	28.0	20.5	--
Derr Pillow (M)	4/1	--	29.5	23.7	--
Hogg Pass	3/30	102	39.4	42.9	42.3
Hogg Pass Pillow (T)	N/R			52.1	
Hogg Pass Pillow (S)	3/30	113	43.3	45.8	--
Hogg Pass Pillow (M)	N/R			51.1	--
Hungry Flat	4/4	0	0.0	0.0	3.4
Irish-Taylor Pillow (T)	3/30	--	39.8	--	--
Irish-Taylor Pillow (S)	3/30	117	37.8	42.5	39.2
Irish-Taylor Pillow (M)	2/25	--	36.7	41.0	--
Lionshead *	3/31	72	28.1	27.3	--
Marks Creek	3/28	TR	0.1	2.3	1.8
New Crescent Lake	3/29	46	18.6	16.5	13.5
New Crescent Lake Plw. (T)	3/29	--	15.6	14.9	--
New Crescent Lake Plw. (S)	3/29	43	15.3	13.2	--
New Crescent Lake Plw. (M)	3/29	--	14.9	14.1	--
New Dutchman Flat #2	4/4	165	70.1	65.0	52.0
Ochoco Meadows	3/30	37	15.0	14.3	8.2
Ochoco Meadows Plw. (T)	3/30	--	17.5	--	--
Ochoco Meadows Plw. (S)	3/30	50	20.0	17.0	--
Ochoco Meadows Plw. (M)	3/30	--	17.2	--	--
Racing Creek	3/25	50	19.6	20.0	16.8b
Snow Mountain (DISC. 82)			22.0a	18.7	12.1
Snow Mountain Plw. (T)	3/28	--	22.7	--	--
Snow Mountain Plw. (S)	3/28	60	20.0	16.0	11.0b
Snow Mountain Plw. (M)	N/R			17.2	--
Summit Lake Pillow (T)	N/R			--	--
Summit Lake Pillow (S)	3/29	130	49.0	41.9	39.9
Summit Lake Pillow (M)	3/29	--	42.5	--	--
Tamarack (DISC. 82)			1.6a	3.1	3.5
Tangent	4/4	91	38.4	29.9	22.4
Three Creek Butte	3/31	23	8.2	11.1	8.6
Three Creek Meadows	3/31	58	21.9	21.3	17.8
Three Creek Mdw. Plw. (T)	3/31	--	25.3	29.7	--
Three Creek Mdw. Plw. (S)	3/31	77	28.3	25.6	18.2b
Three Creek Mdw. Plw. (M)	3/31	--	24.6	27.9	--
Whitewater Meadow *	3/31	2	1.0	4.6	--

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

BASIC DATA SUPPLEMENT 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE	THIS YEAR			PAST RECORD	
	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)	
				Last Yr.	Ave. ^c
HOOD, MILE CREEKS LOWER DESCHUTES WATERSHEDS AREA 6					
Brooks Meadow	3/31	26	8.2	6.1	10.7
Clear Lake	3/30	8	2.2	7.8	10.2
Clear Lake Pillow (T)	3/30	--	14.6	16.7	--
Clear Lake Pillow (S)	3/30	33	8.8	18.2	--
Clear Lake Pillow (M)	3/30	--	12.1	17.0	--
Clear Lake Expt.	3/30	23	7.0	16.2	16.3
Greenpoint	3/26	24	11.1	10.8	16.5
Greenpoint Pillow (T)	3/26	--	13.3	14.6	--
Greenpoint Pillow (S)	3/26	32	13.0	15.5	--
Greenpoint Pillow (M)	3/26	--	12.7	13.3	--
Mt. Hood Test Site (T)	3/29	--	59.9	80.7	67.2b
Mt. Hood Test Site (S)	3/29	152	59.8	78.3	71.0b
Mt. Hood Test Site (M)	3/29	--	59.3	75.2	--
Mud Ridge Pillow (T)	3/30	--	25.5	--	--
Mud Ridge Pillow (S)	3/30	52	18.8	30.8	29.2
Mud Ridge Pillow (M)	3/30	--	25.2	--	--
Red Hill	3/29	70	27.4	45.8	43.3
Red Hill Pillow (T)	3/29	--	35.7	--	--
Red Hill Pillow (S)	3/29	76	30.0	47.5	--
Red Hill Pillow (M)	3/29	--	37.9	--	--
Switchback (DISC. 82)			10.0a	4.2	16.4
Tilly Jane (DISC. 82)			29.4a	44.4	41.7
LOWER COLUMBIA WATERSHED AREA 7					
Blazed Alder Pillow (T)	4/4	--	20.7	--	--
Blazed Alder Pillow (S)	4/4	55	18.5	36.1	--
Blazed Alder Pillow (M)	4/4	--	18.2	36.3	--
Mt. Hood Test Site (T)	3/29	--	59.9	80.7	67.2
Mt. Hood Test Site (S)	3/29	152	59.8	78.3	71.0b
Mt. Hood Test Site (M)	3/29	--	59.3	75.2	--
Mud Ridge Pillow (T)	3/30	--	25.5	--	--
Mud Ridge Pillow (S)	3/30	52	18.8	30.8	29.2
Mud Ridge Pillow (M)	3/30	--	25.2	--	--
North Fork Res. (T)	4/4	--	1.8	15.9	--
North Fork Res. (S)	4/4	6	1.5	16.4	--
North Fork Res. (M)	4/4	--	1.7	15.6	--
WILLAMETTE WATERSHEDS AREA 8					
Cascade Summit	3/29	83	31.7	36.2	30.1
Cascade Summit Plw. (T)	3/29	--	34.9	43.2	--
Cascade Summit Plw. (S)	3/29	93	34.5	41.5	--
Cascade Summit Plw. (M)	3/29	--	33.9	41.5	--
Champion (DISC. 82)			17.4a	27.8	32.3
Clackamas Lake	3/31	2	1.0	8.0	12.6
Clackamas Lake Plw. (T)	3/31	--	5.6	10.8	--
Clackamas Lake Plw. (S)	3/31	10	3.4	14.4	--
Clackamas Lake Plw. (M)	3/31	--	6.7	10.5	--
Clear Lake	3/30	8	2.2	7.8	10.2
Clear Lake Plw. (T)	3/30	--	14.6	16.7	--
Clear Lake Plw. (S)	3/30	33	8.8	18.2	--
Clear Lake Plw. (M)	3/30	--	12.1	17.0	--
Clear Lake Expt.	3/30	23	7.0	16.2	16.3

SNOW

SNOW	THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)	
				Last Yr.	Ave. ^c
WILLAMETTE WATERSHEDS (CONTINUED)					
Daly Lake Plw. (T)	4/5	--	4.8	16.6	--
Daly Lake Plw. (S)	4/5	15	4.4	13.8	--
Daly Lake Plw. (M)	4/5	--	4.2	17.5	--
Dead Horse Grade	4/4	16	3.6	14.5	18.8
Golden Curry Creek(DISC.82)			0.0a	1.6	4.2
Hogg Pass	3/30	102	39.4	42.9	42.3
Hogg Pass Pillow (T)	N/R			52.1	--
Hogg Pass Pillow (S)	3/30	113	43.3	45.8	--
Hogg Pass Pillow (M)	N/R			51.1	--
Holland Meadows Plw. (T)	4/5	--	32.0	29.6	--
Holland Meadows Plw. (S)	4/5	78	31.3	31.5	--
Holland Meadows Plw. (M)	4/5	--	30.8	32.9	--
Jump Off Joe Pillow (T)	3/30	--	1.3	12.9	--
Jump Off Joe Pillow (S)	3/30	2	0.9	16.2	--
Jump Off Joe Pillow (M)	3/30	--	0.8	14.6	--
Little Meadows Plw. (T)	4/5	--	25.9	30.9	--
Little Meadows Plw. (S)	4/5	54	21.8	27.8	--
Little Meadows Plw. (M)	4/5	--	21.7	29.8	--
Lost Creek Ranch (DISC.82)			0.0a	0.0	2.2
Marion Forks	N/R			12.8	13.0
Marion Forks Pillow (T)	3/30	--	0.0	--	--
Marion Forks Pillow (S)	3/30	0	0.0	13.0	--
Marion Forks Pillow (M)	3/30	--	0.0	--	--
Marys Peak	N/R			8.3	12.8b
McCredie Springs (DISC.82)			0.0a	0.1	--
McKenzie	4/4	104	41.6	53.0	45.9
McKenzie Pillow (T)	4/4	--	37.2	53.5	--
McKenzie Pillow (S)	4/4	98	39.3	49.7	--
McKenzie Pillow (M)	4/4	--	36.7	50.7	--
Mt. Hood Test Site (T)	3/29	--	59.9	80.7	67.2
Mt. Hood Test Site (S)	3/29	152	59.8	78.3	71.0b
Mt. Hood Test Site (M)	3/29	--	59.3	75.2	--
Peavine Ridge Pillow (T)	4/4	--	9.3	18.4	17.3
Peavine Ridge Pillow (S)	4/4	23	7.4	16.2	--
Peavine Ridge Pillow (M)	4/4	--	9.1	17.1	--
Railroad Overpass	3/29	0	0.0	0.1	0.6
Railroad Overpass Plw. (T)	3/29	--	0.0	0.5	--
Railroad Overpass Plw. (S)	3/29	0	0.0	0.0	--
Railroad Overpass Plw. (M)	3/29	--	0.0	--	--
Roaring River Plw. (T)	4/5	--	34.4	40.8	--
Roaring River Plw. (S)	4/5	82	31.5	37.8	--
Roaring River Plw. (M)	4/5	--	32.2	42.0	--
Saddle Mtn. Pillow (T)	3/29	--	0.7	5.8	11.5b
Salt Creek Falls	3/29	17	5.8	13.3	16.4
Salt Creek Falls Plw. (T)	3/29	--	18.0	26.2	--
Salt Creek Falls Plw. (S)	3/29	40	15.3	24.5	--
Salt Creek Falls Plw. (M)	3/29	--	17.0	24.9	--
Santiam Junction	3/30	32	12.0	29.3	22.6
Santiam Junction Plw. (T)	3/30	--	14.6	29.5	--
Santiam Junction Plw. (S)	3/30	36	14.3	26.0	--
Santiam Junction Plw. (M)	3/30	--	15.1	30.7	--
Seine Creek Pillow (T)	3/29	--	0.0	1.0	--
Summit Lake Pillow (T)	N/R		--	--	--
Summit Lake Pillow (S)	3/29	130	49.0	41.9	39.9
Summit Lake Pillow (M)	3/29	--	42.5	--	--
Timothy Lake	3/26	23	8.0	14.7	15.6b
Weaver Creek (DISC. 82)			0.0a	1.0	0.3
White Branch Slide(DISC.82)	4/4	6	1.0	6.7	8.7
Whitewater Bridge(DISC.82)			0.0a	0.0	2.3

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

BASIC DATA SUPPLEMENT 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE	THIS YEAR			PAST RECORD	
	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)	
				Last Yr.	Ave. ^c
ROGUE, UMPQUA WATERSHEDS AREA 9					
Althouse #2	3/29	25	8.1	0.1	8.9
Althouse #3	3/29	92	36.0	11.6	--
Annie Springs (DISC. 83)			70.0a	56.4	46.7
Annie Springs Rev.	4/2	177	68.5	--	--
Beaver Dam Creek	3/31	37	13.0	11.7	13.9b
Bigelow Camp Plw. (T)	4/1	--	31.8	9.7	--
Bigelow Camp Plw. (S)	4/1	81	33.9	10.2	--
Bigelow Camp Plw. (M)	4/1	--	33.7	8.7	--
Big Red Mtn (DISC.83)				28.7	30.3
Big Red Mtn. Rev.	4/1	154	61.6	--	--
Big Red Mtn. Plw. (T)	4/1	--	58.1	--	--
Big Red Mtn. Plw. (S)	4/1	145	58.0	23.8	--
Big Red Mtn. Plw. (M)	4/1	--	53.2	25.8	--
Billie Creek Divide	4/4	80	30.5	23.3	21.8
Billie Cr. Div. Plw. (T)	4/4	--	31.2	26.1	--
Billie Cr. Div. Plw. (S)	4/4	82	30.8	24.8	--
Billie Cr. Div. Plw. (M)	4/4	--	29.8	24.9	--
Caliban (Alternate)	3/30	160	58.4	33.4	--
Champion (DISC. 82)			17.4a	17.8	32.2
Cold Spgs. Camp (DISC. 83)			54.5a	40.8	35.6
Cold Springs Camp Rev.	4/4	141	55.3	--	--
Cold Spgs. Camp Plw. (T)	4/4	--	50.9	37.3	--
Cold Spgs. Camp Plw. (S)	4/4	117	44.4	32.0	--
Cold Spgs. Camp Plw. (M)	4/4	--	47.8	35.7	--
Deadwood Junction	3/31	23a	8.8a	4.4	9.0
Diamond-Crater Sum(DISC.82)			47.6a	38.5	31.9
Diamond Lake	3/30	66	23.7	21.4	21.3
Diamond Lake Plw. (T)	N/R			12.6	--
Diamond Lake Plw. (S)	3/30	66	24.0	16.2	--
Diamond Lake Plw. (M)	N/R			11.9	--
Fish Lake	4/1	41	15.8	13.2	12.9
Fish Lake Pillow (T)	4/1	--	14.2	11.0	--
Fish Lake Pillow (S)	4/1	35	12.6	12.8	--
Fish Lake Pillow (M)	4/1	--	13.6	10.3	--
Fourmile Lake	4/4	121	50.9	25.0	24.2
Fourmile Lake Plw. (T)	4/4	--	44.7	36.0	--
Fourmile Lake Plw. (S)	4/4	128	49.3	35.8	--
Fourmile Lake Plw. (M)	4/4	--	42.8	33.7	--
Grayback Peak	4/1		51.7a	18.9	25.0
Howard Prairie Reservoir	3/31	36	13.9	5.6	7.6
Hyatt Prairie Reservoir	N/R			4.7	7.0
Hyatt Prairie Res. Plw. (T)	3/31	--	16.7	9.0	--
Hyatt Prairie Res. Plw. (S)	3/31	44	19.3	--	--
Hyatt Prairie Res. Plw. (M)	3/31	--	16.7	8.5	--
King Mountain #1	3/29	21	7.3	2.0	5.6b
King Mountain #2	3/29	15	5.3	1.1	6.6b
King Mountain #2 Plw. (T)	3/29	--	3.1	0.5	--
King Mountain #2 Plw. (S)	3/29	11	3.5	1.9	--
King Mountain #2 Plw. (M)	3/29	--	2.7	0.8	--
King Mountain #3	3/29	0	0.0	0.7	0.6b
King Mountain #4	3/29	0	0.0	0.3	--
King Mountain #5	3/29	0	0.0	0.0	--
King Mountain #6	3/29	0	0.0	0.0	--
Mt. Ashland Switchback	3/30	169	57.0	34.2	36.4b
Mule Creek	3/29	3	1.2	4.4	7.9b
North Umpqua	3/31	26	7.8	11.8	14.2
Page Mountain	3/29	8	3.8	0.0	3.7
Park Headquarters (DISC.83)			93.0a	85.0	62.7
Park Headquarters Rev.	4/1	237	94.1	--	--
Red Butte #1	3/28	34	11.8	7.3	16.7
Red Butte #2	3/28	13	4.6	6.2	9.8
Red Butte #3	3/28	0	0.0	0.0	5.0
Red Butte #4	3/28	0	0.0	0.0	2.5
Red Butte #5	3/28	0	0.0	0.0	0.1
Red Butte #6	3/28	0	0.0	0.0	--
Seven Mile	N/R			45.3	34.3b
Seven Mile Pillow (T)	4/1	--	51.3	40.6	--
Seven Mile Pillow (S)	N/R			42.2	--
Seven Mile Pillow (M)	N/R			45.7	--
Silver Burn	4/4	27	10.4	11.8	12.0
Siskiyou Summit	4/1	19	7.9	1.0	4.8
Ski Bowl Road	3/31	147	56.0	27.0	31.0b
South Fork Canal	4/1	0	0.0	2.0	0.9
Trap Creek	3/31	19	4.5	14.2	12.2

SNOW

DRAINAGE BASIN and/or SNOW COURSE	THIS YEAR			PAST RECORD	
	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)	
				Last Yr.	Ave. ^c
KLAMATH WATERSHEDS AREA 10					
Annie Springs (DISC. 83)			70.0a	56.4	46.7
Annie Springs Rev.	4/2	177	68.5	--	--
Billie Creek Divide	4/4	80	30.5	23.3	21.8
Billie Cr. Div. Plw. (T)	4/4	--	31.2	26.1	--
Billie Cr. Div. Plw. (S)	4/4	82	30.8	24.8	--
Billie Cr. Div. Plw. (M)	4/4	--	29.8	24.9	--
Chemult Alternate	4/1	47	17.6	11.9	9.0
Chemult Alternate Plw.	4/1	--	13.9	8.9	--
Chemult Alternate Plw. (S)	4/1	43	16.5	9.0	--
Chemult Alternate Plw. (M)	4/1	--	13.2	8.1	--
Chiloquin (PP&L)	3/1	TR	0.1	0.4	--
Cold Spgs. Camp (DISC. 83)			54.5a	40.8	35.6
Cold Springs Camp Rev.	4/4	141	55.3	--	--
Cold Spgs. Camp Plw. (T)	4/4	--	50.9	37.3	--
Cold Spgs. Camp Plw. (S)	4/4	117	44.4	32.0	--
Cold Spgs. Camp Plw. (M)	4/4	--	47.8	35.7	--
Crazyman Flat *	3/31	60	21.6	9.1	9.9
Crowder Flat (Calif.) *	3/31	0	0.0	0.0	1.9
Crystal (PP&L)	3/31	2	1.0	1.3	6.8b
Diamond-Crater Sum. (DISC. 82)			47.6a	38.5	31.9
Dog Hollow *	3/31	0	0.0	0.0	0.8
Finley Corrals *	3/31	87	31.3	16.0	16.1b
Fort Klamath (PP&L)	3/31	TR	0.1	1.9	1.8b
Fourmile Lake	4/4	121	50.9	25.0	24.2
Fourmile Lake Plw. (T)	4/4	--	44.7	36.0	--
Fourmile Lake Plw. (S)	4/4	128	49.3	35.8	--
Fourmile Lake Plw. (M)	4/4	--	42.8	33.7	--
Gerber	4/1	0	0.0	2.1	0.9b
Harriman (PP&L)	3/31	TR	0.0	0.4	2.3b
Howard Prairie Reservoir	3/31	36	13.9	5.6	7.6
Hyatt Prairie Reservoir	N/R			4.7	7.0
Hyatt Prairie Res. Plw. (T)	3/31	--	16.7	9.0	--
Hyatt Prairie Res. Plw. (S)	3/31	44	19.3	--	--
Hyatt Prairie Res. Plw. (M)	3/31	--	16.7	8.5	--
Park Headquarters (DISC. 83)			93.0a	85.0	62.7
Park Headquarters Rev.	4/1	237	94.1	--	--
Quartz Mountain	3/28	28	10.1	2.8	4.5
Quartz Mtn. Pillow (T)	3/28	--	19.7	--	--
Quartz Mtn. Pillow (S)	3/28	39	14.2	5.6	--
Quartz Mtn. Pillow (M)	3/28	--	17.2	8.5	--
Seven Mile	N/R			45.3	34.3b
Seven Mile Pillow (T)	4/1	--	51.3	40.6	--
Seven Mile Pillow (S)	N/R			42.2	--
Seven Mile Pillow (M)	N/R			45.7	--
State Line (Calif.) *	3/31	31	11.2	2.3	6.9
Strawberry	4/4	36	12.7	5.2	6.4
Strawberry Pillow (T)	4/4	--	16.1	4.8	--
Strawberry Pillow (S)	4/4	43	16.1	3.9	--
Strawberry Pillow (M)	4/4	--	15.3	4.5	--
Summer Rim *	3/31	84	30.2	19.0	16.6b
Summer Rim	4/4	85	27.0	23.0	16.6
Summer Rim Pillow (T)	4/4	--	36.6	--	--
Summer Rim Pillow (S)	4/4	94	30.8	23.5	17.2b
Summer Rim Pillow (M)	4/4	--	35.8	--	17.5b
Sycan Flat *	3/31	25	9.0	6.8	5.3b
Taylor Butte	3/30	19	7.3	5.5	3.3
Taylor Butte Pillow (T)	3/30	--	7.2	3.8	--
Taylor Butte Pillow (S)	3/30	25	9.9	5.8	--
Taylor Butte Pillow (M)	3/30	--	6.8	3.6	--

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

BASIC DATA SUPPLEMENT 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE	THIS YEAR			PAST RECORD	
	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)	
				Last Yr.	Ave. ^c

LAKE COUNTY, GOOSE LAKE WATERSHEDS AREA 11					
Adin Mountain (Calif.)	3/28	68	23.6	--	12.2
Bald Mountain (Nev.)	3/31	24	8.6	--	2.4
Barley Camp *	3/31	70	25.2	16.0	--
Bear Flat Meadow *	3/31	58	20.8	8.4	9.9
Camas Creek #1	3/28	46	16.5	6.7	8.5
Camas Creek #2	3/28	59	21.1	9.0	--
Cedar Pass (Calif.)	3/23	65	24.6	16.2	16.3
Colvin Creek *	3/31	25a	9.0a	4.7	4.4b
Cox Flat *	3/31	33	11.9	0.0	6.4
Crowder Flat (Calif.)	3/31	0	0.0	0.0	1.9
Dismal Swamp (Calif.) *	3/31	113	42.9	23.1a	--
Dismal Swamp #2 Plw. (T)	N/R			--	--
Dismal Swamp #2 Plw. (S)	3/24	108	42.0	32.8	--
Dismal Swamp #2 Plw. (M)	N/R			--	--
Finley Corrals *	3/31	87	31.3	26.0	16.1b
Hart Mountain *	3/31	12	4.3	0.0	1.4
Little Bally Mtn. (Nev.)	3/31	21	7.6	0.4	1.9
Mt. Bidwell (Calif.)	3/24	97	37.6	26.6	26.0b
North Star (Calif.)	3/28	78	29.3	11.3	16.1b
Patton Meadows *	3/31	91	34.6	17.5	17.8
Quartz Mountain	3/28	28	10.1	2.8	4.5
Quartz Mountain Plw. (T)	3/28	--	19.7	--	--
Quartz Mountain Plw. (S)	3/28	39	14.2	5.6	--
Quartz Mountain Plw. (M)	3/28	--	17.2	8.5	--
Reservation Creek (Calif.)	3/28	57	21.7	10.1	10.5
Rogger Meadows *	3/31	66	23.8	10.1	--
Sherman Valley *	3/31	70	25.2	14.0	11.8
Silver Creek	3/31	0	0.0	0.0	1.1
Silver Creek Plw. (T)	3/31	--	25.5	15.5	--
Silver Creek Plw. (S)	3/31	62	21.2	15.9	--
Silver Creek Plw. (M)	3/31	--	25.8	16.1	--
State Line (Calif.) *	3/31	31	11.2	2.3	6.9
Strawberry	4/4	36	12.7	5.2	6.4
Strawberry Plw (T)	4/4	--	16.1	4.8	--
Strawberry Plw (S)	4/4	43	16.1	3.9	--
Strawberry Plw (M)	4/4	--	15.3	4.5	--
Summer Rim *	3/31	84	30.2	19.0	16.6b
Summer Rim	4/4	85	27.0	23.0	16.6
Summer Rim Plw. (T)	4/4	--	36.6	--	--
Summer Rim Plw. (S)	4/4	94	30.8	23.5	17.2
Summer Rim Plw. (M)	4/4	--	35.8	--	17.5b
Sycan Flat *	3/31	25	9.0	6.8	5.3b

SNOW

DRAINAGE BASIN and/or SNOW COURSE	THIS YEAR			PAST RECORD	
	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)	
				Last Yr.	Ave. ^c

HARNEY BASIN WATERSHEDS AREA 12					
Blue Mountain Springs	3/28	66	22.8	23.2	16.0
Blue Mtn. Spgs. Plw. (T)	3/28	--	24.0	--	--
Blue Mtn. Spgs. Plw. (S)	3/28	66	22.3	26.0	13.8b
Blue Mtn. Spgs. Plw. (M)	3/28	--	25.6	28.4	12.2b
Buck Pasture *	4/5	0	0.0	--	1.8
Buckskin Lake *	4/5	0	0.0	0.0	--
Call Meadows *	4/5	15	5.4	5.7	2.7
Delintment Lake (DISC.82)			8.4b	7.8	5.6
Disaster Peak (Nev.)	3/28	63	23.6	--	10.9
Emigrant Butte (DISC. 82)			0.4a	0.4	1.6
Fish Creek (Rev.)	3/29	116	38.2	33.0a	26.1
Fish Creek Plw. (T)	3/29	--	47.7	--	--
Fish Creek Plw. (S)	3/29	125	46.0	34.0	--
Fish Creek Plw. (M)	3/29	--	46.4	36.8	29.8b
Government Corrals	3/31	68	23.0	--	--
Hart Mountain *	3/31	12	4.3	0.0	1.4
Idlewild Camp Alt(DISC.82)			0.1a	0.4	1.4b
Izee Summit (DISC. 82)			10.5a	12.4	6.6
Lake Creek R.S.	3/28	41	14.5	14.0	9.2
Lake Creek R.S. Plw. (T)	3/28	--	21.8	18.9	--
Lake Creek R.S. Plw. (S)	3/28	44	16.3	15.0	--
Lake Creek R.S. Plw. (M)	3/28	--	19.2	17.1	--
Oregon Canyon *	4/5	30	11.4	2.2	3.8
Pueblo Summit *	N/R			0.1	--
Rock Springs	3/31	26	9.3	9.0	4.3
Rock Springs Plw. (T)	3/31	--	10.1	5.2	--
Rock Springs Plw. (S)	3/31	23	8.5	5.0	--
Rock Springs Plw. (M)	3/31	--	9.9	5.5	--
Silvies	4/1	74	31.0	14.0	12.9
Silvies Pillow (T)	N/R			--	--
Silvies Pillow (S)	4/1	94	40.0	19.0	--
Silvies Pillow (M)	N/R			--	21.9b
Snow Mountain (DISC.82)			22.0a	18.7	12.1
Snow Mountain Plw. (T)	3/28	--	22.7	--	--
Snow Mountain Plw. (S)	3/28	60	20.0	16.0	11.0b
Snow Mountain Plw. (M)	N/R			17.2	--
Starr Ridge	3/28	24	81	9.2	4.6
Starr Ridge Pillow (T)	3/28	--	10.2	8.6	--
Starr Ridge Pillow (S)	3/28	25	8.4	6.8	--
Starr Ridge Pillow (M)	3/28	--	10.7	9.1	--
Stinking Water	4/1	0	0.0	0.0	0.8b
Trout Creek *	4/5	63	23.9	14.4	7.6
"V" Lake *	N/R			13.3	6.5

* Aerial

TR = Trace

T = Telemetry Measurement

S = Snow Tube Measurement

M = Manometer Measurement

(DISC. ##) = SNOW Course manual measurement discontinued in year shown-estimates to be made for 5 years.

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

BASIC DATA SUPPLEMENT 2

PRECIPITATION (Inches)

DRAINAGE BASIN and PRECIPITATION GAGE LOCATION	ELEVATION	CURRENT INFORMATION		PAST RECORD	
		Date of Reading	Precipitation	Last Year	Average ^c
Aneroid Lake #2 (Wallowa County)	7300	From 2/26 To 3/27	13.20"		
Arbuckle Mountain (Morrow County)	5400	From 2/26 To 3/28	8.04"		
Beaver Reservoir (Union County)	5150	From 2/24 To 3/30	5.16"		
Bigelow Camp (Josephine County)	5120	From 2/28 To 4/1	16.32"		
Big Red Mountain (Jackson County)	2650	From 2/2 To 4/1	32.52"		
Billie Creek Divide (Jackson County)	5310	From 2/28 To 4/4	6.00"		
Blazed Alder (Clackamas County)	3650	From 3/2 To 4/4	18.60"		
Blue Mountain Springs (Grant County)	5900	From 2/23 To 3/28	5.28"		
Bourne (Baker County)	5800	From 2/24 To 3/28	5.40"		
Bowman Springs (Union County)	4580	From 2/27 To 3/28	2.76"		
Cascade Summit (Lane County)	4880	From 2/24 To 3/29	8.88"		
Chemult (Klamath County)	4760	From 3/2 To 4/1	3.72"		
Clackamas Lake (Clackamas County)	3400	From 2/28 To 3/31	1.68"		
Clear Lake (Wasco County)	3500	From 2/28 To 3/30	7.92"		
Cold Springs (Klamath County)	6100	From 2/3 To 4/4	22.72"		
County Line (Umatilla County)	4800	From 2/23 To 3/28	4.56"		
Daly Lake (Linn County)	3600	From 12/27 To 4/5	45.00"		
Derr (Wheeler County)	5670	From 2/23 To 4/1	8.40"		
Diamond Lake (Douglas County)	4600	From 2/22 To 3/30	9.36"		
Eilertson Meadows (Baker County)	5400	From 2/24 To 3/28	4.80"		
Emigrant Springs (Umatilla County)	3925	From 2/23 To 3/28	0.96"		
Fish Creek (Harney County)	7900	From 3/2 To 3/29	7.08"		

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

BASIC DATA SUPPLEMENT 2

PRECIPITATION (Inches)

DRAINAGE BASIN and PRECIPITATION GAGE LOCATION		CURRENT INFORMATION		PAST RECORD	
		ELEVATION	Date of Reading	Precipitation	Last Year
Fourmile Lake (Klamath County)	6000	From 2/3 To 4/4	20.04"		
Gold Cneter (Grant County)	5340	From 2/24 To 3/28	4.32"		
Greenpoint (Hood River County)	3200	From 2/24 To 3/26	5.76"		
High Ridge (Umatilla County)	4150	From 2/28 To 3/30	5.40"		
Hogg Pass (Jefferson County)	4755	From 2/23 To 3/30	14.76"		
Holland Meadows (Lane County)	4900	From 12/27 To 4/5	18.38"		
Hyatt Prairie (Jackson County)	4900	From 2/28 To 3/31	7.68"		
Irish-Taylor (Deschutes County)	5500	From 2/25 To 3/30	10.92"		
Jump Off Joe (Linn County)	3400	From 2/23 To 3/30	13.92"		
King Mountain #2 (Douglas County)	4500	From 2/28 To 3/29	12.36"		
Lake Creek (Grant County)	5120	From 2/23 To 3/28	4.80"		
Little Meadows (Linn County)	4000	From 12/27 To 4/5	57.96"		
Lucky Strike (Umatilla County)	5050	From 2/23 To 3/28	4.62"		
Madison Butte (Morrow County)	5250	From 2.23 To 3/28	4.68"		
Marion Forks (linn County)	2730	From 2/23 To 3/30	15.12"		
McKenzie (Lane County)	5000	From 3/1 To 4/4	18.60"		
Moss Springs (Union County)	5850	From 2/24 To 3/28	7.08"		
Mt. Hood Test Site (Clackamas County)	5400	From 3/1 To 3/29	11.52"		
Mt. Howard (Wallowa County)	7910	From 2/24 To 3/28	7.32"		
Mud Ridge (Clackamas County)	4050	From 2/28 To 3/30	6.12"		
New Crescent Lake (Klamath County)	4800	From 2/24 To 3/29	2.04"		
North Fork Reservoir (Multnomah County)	3120	From 3/2 To 4/4	21.34"		

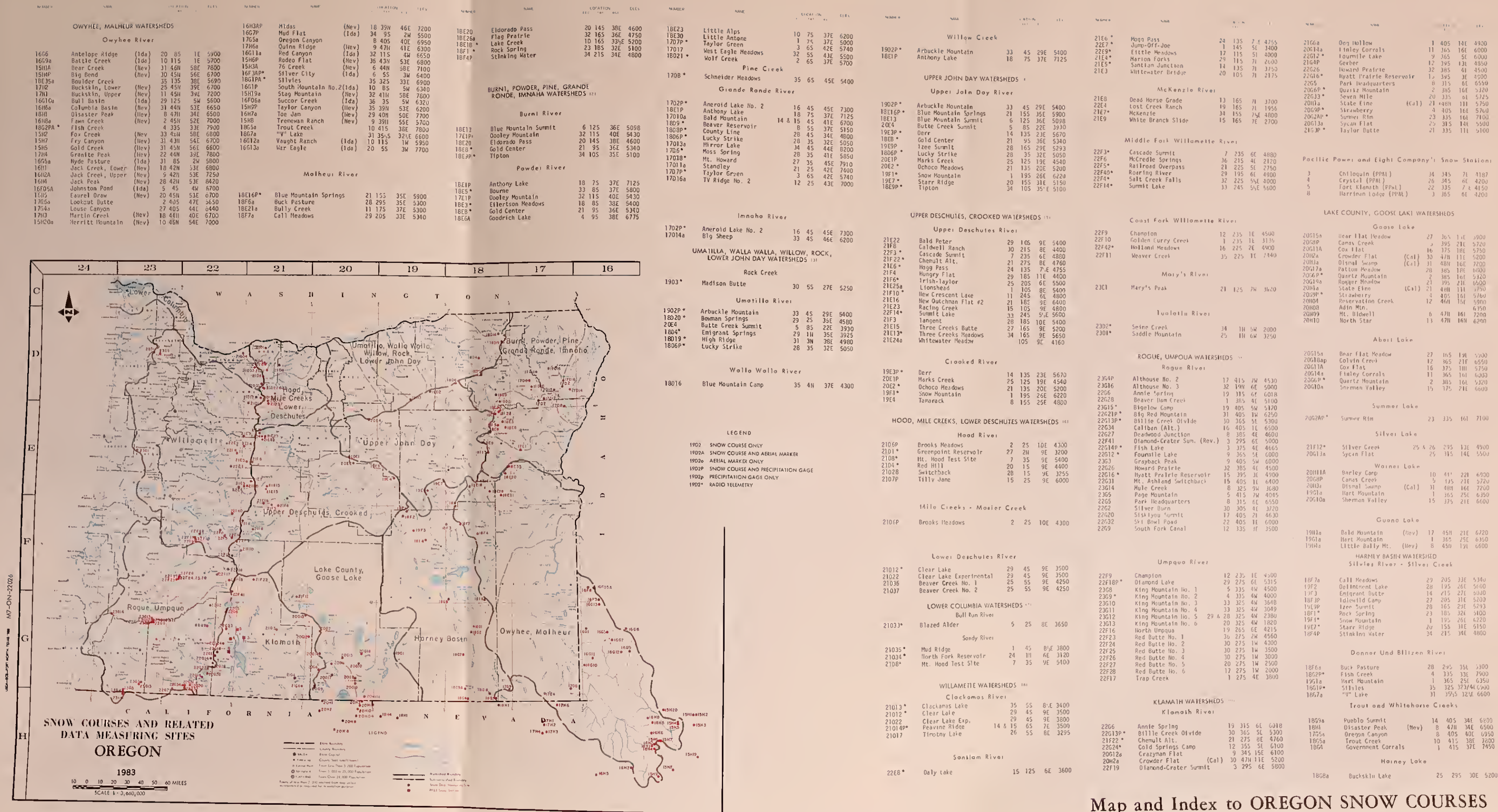
(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

BASIC DATA SUPPLEMENT 2

PRECIPITATION (Inches)

DRAINAGE BASIN and PRECIPITATION GAGE LOCATION	ELEVATION	CURRENT INFORMATION		PAST RECORD	
		Date of Reading	Precipitation	Last Year	Average ^c
Ochoco Meadows (Crook County)	5200	From 2/22 To 3/30	6.84"		
Quartz Mountain (Lake County)	6300	From 2/24 To 3/28	5.04"		
Railroad Overpass (Lane County)	2750	From 2/24 To 3/29	9.96"		
Red Hill (Hood River County)	4400	From 2/28 To 3/29	7.10"		
Roaring River (Lane County)	4900	From 12/27 To 4/5	31.80"		
Rock Springs (Grant County)	5100	From 2/24 To 3/31	4.44"		
Salt Creek Falls (Lane County)	4000	From 2/24 To 3/29	9.84"		
Schneider Meadows (Baker County)	5400	From 2/24 To 3/28	23.76"		
Silver Creek (Lake County)	5720	From 3/4 To 3/31	6.60"		
Silvies (Harney County)	6900	From 3/2 To 4/1	8.16"		
Snow Mountain (Harney County)	6220	From 2/24 To 3/28	7.64"		
Starr Ridge (Grant County)	5156	From 2/24 To 3/30	4.56"		
Strawberry (Lake County)	5760	From 2/23 To 4/4	6.24"		
Summit Lake (Klamath County)	5600	From 2/24 To 3/29	10.08"		
Taylor Butte (Klamath County)	5040	From 2/22 To 2/30	5.76"		
Taylor Green (Baker County)	5740	From 2/24 To 3/28	6.84"		
Three Creek Meadows (Deschutes County)	5650	From 2/28 To 3/31	7.68"		
Tipton (Baker County)	5100	From 2/24 To 3/28	3.60"		
Wolf Creek (Union County)	5720	From 2/24 To 3/28	3.88"		

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.



Map and Index to OREGON SNOW COURSES

The Following Organizations Cooperate in the Oregon Snow Survey Work

STATE

Idaho Cooperative Snow Surveys
Nevada Cooperative Snow Surveys
Oregon State University
Oregon Department of Water Resources
Soil and Water Conservation Districts of Oregon

COUNTY

Douglas County Water Resources Survey

FEDERAL

Department of Agriculture
Cooperative Extension Service
Forest Service
Soil Conservation Service
Department of Army
Corps of Engineers
Department of Commerce
NOAA, National Weather Service
Department of Energy
Bonneville Power Administration
Department of the Interior
Bureau of Land Management
Fish and Wildlife Service
Geological Survey
Bureau of Reclamation

PUBLIC UTILITIES

Pacific Power and Light Company
Portland General Electric Company
California-Pacific National

MUNICIPALITIES

City of Baker
City of La Grande
City of Portland
City of The Dalles
City of Walla Walla

IRRIGATION DISTRICTS

Arnold Irrigation District
Associated Ditch Companies
Burnt River Irrigation District
Central Oregon Irrigation District
East Fork Irrigation District
Grants Pass Irrigation District
Hood River Irrigation District
Jordan Valley Irrigation District
Juniper Flat Irrigation District
Lakeview Water Users, Incorporated
Medford Irrigation District
Middle Fork Irrigation District
North Board of Control - Owyhee Project
Ochoco Irrigation District
Rogue River Valley Irrigation District
South Board of Control - Owyhee Project
Squaw Creek Irrigation District
Talent Irrigation District
Tumalo Project
Vale - Oregon Irrigation District
Warmsprings Irrigation District

PRIVATE ORGANIZATIONS

The Crag Rats, Hood River, Oregon

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1220 S.W. THIRD AVE.
PORTLAND, OREGON 97204

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

Return this entire sheet to above address, if you do NOT wish to receive this material ☐, or if change of address is needed ☐ (indicate changes in address below, including ZIP code).

THIRD-CLASS BULK RATE
POSTAGE AND FEES PAID
USDA - SCS
PORTLAND OR
PERMIT NO G-267

THIRD CLASS MAIL

FEDERAL - STATE - PRIVATE
COOPERATIVE SNOW SURVEYS

Furnishes the basic data
necessary for forecasting
water supply for irrigation,
domestic and municipal water
supply, hydro-electric power
generation, navigation,
mining and industry

*"The Conservation of Water begins
with the Snow Survey"*

USDA NATIONAL AGRICULTURAL LIBRARY
CURRENT SERIAL RECORD
BELTSVILLE, MARYLAND 20705